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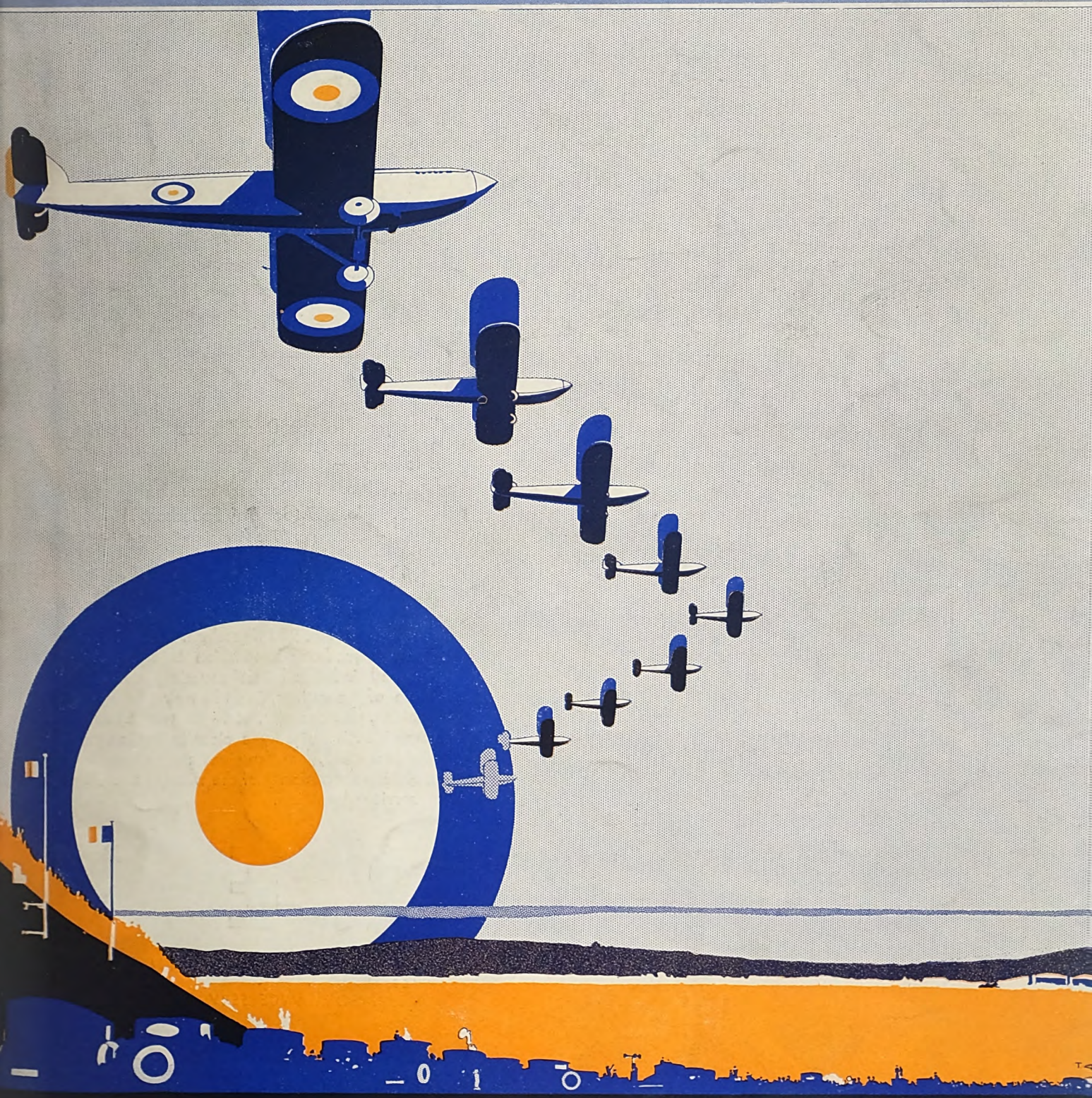
THE AEROPLANE

6d. Weekly.

INCORPORATING AERONAUTICAL ENGINEERING

Edited by C.G.Grey



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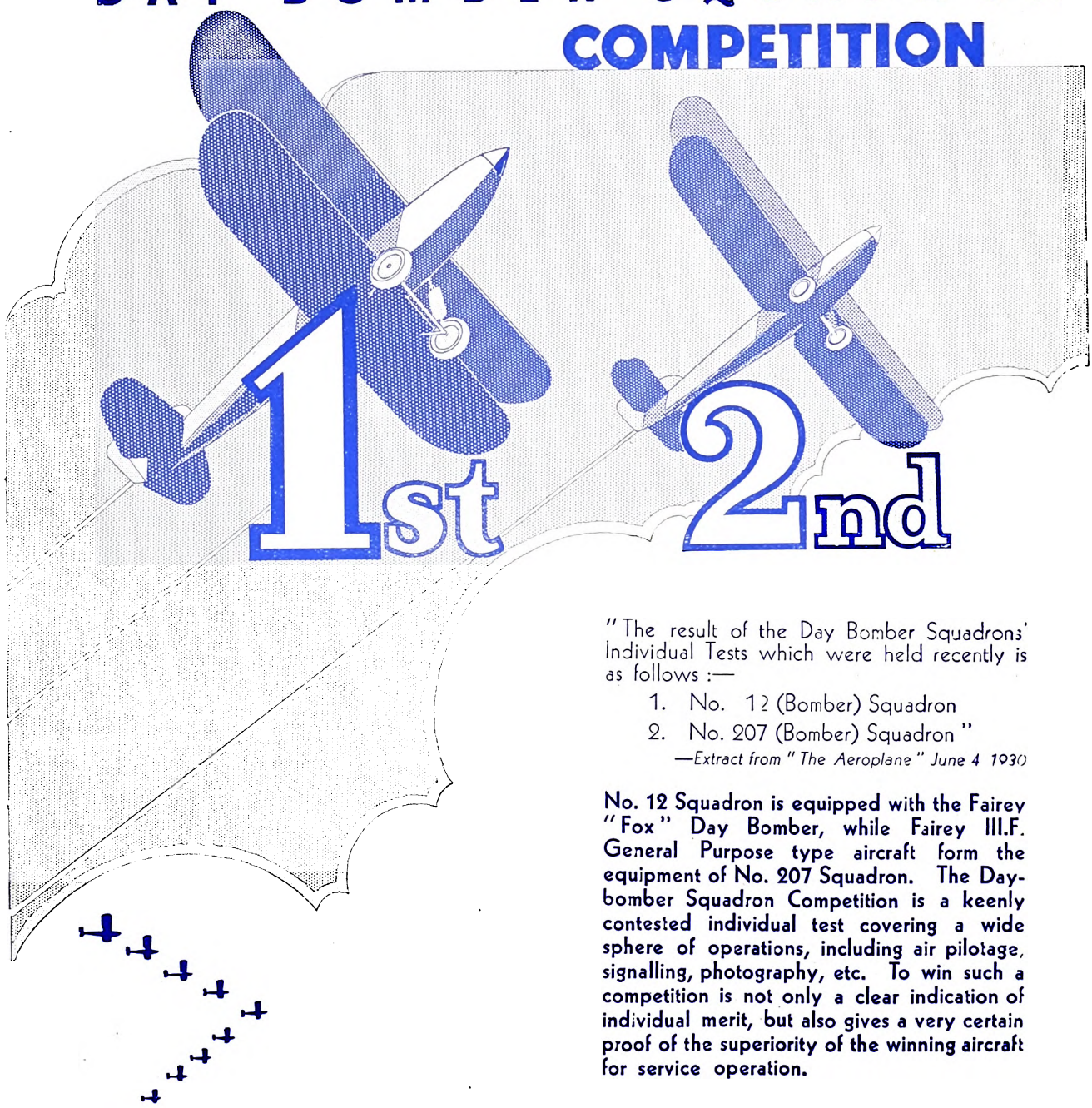
THE ROYAL AIR FORCE

DAY BOMBER SQUADRON COMPETITION



"The result of the Day Bomber Squadrons' Individual Tests which were held recently is as follows :—

1. No. 12 (Bomber) Squadron
2. No. 207 (Bomber) Squadron"

—Extract from "The Aeroplane" June 4 1930

No. 12 Squadron is equipped with the Fairey "Fox" Day Bomber, while Fairey III.F. General Purpose type aircraft form the equipment of No. 207 Squadron. The Day-bomber Squadron Competition is a keenly contested individual test covering a wide sphere of operations, including air pilotage, signalling, photography, etc. To win such a competition is not only a clear indication of individual merit, but also gives a very certain proof of the superiority of the winning aircraft for service operation.

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JULY 2, 1930.

THE AEROPLANE

Incorporating

Aeronautical Engineering

VOL. XXXIX

No. 1.

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ON THE R.A.F. DISPLAY.

On June 28 the eleventh Display by the Royal Air Force took place at Hendon. One supposes that the official announcer or writer of official documents would say that it was "carried out." But as in fact almost the only things which in the ordinary way are carried out are corpses and drunks one has a rooted objection to this favourite and foolish official formula.

For the first time since the Pageant or Display began one feels that serious criticism is needed. In most ways the Pageant showed that the R.A.F. is fully up to the standard which was set during the War, when we had not only the best but the biggest Air Force in the World. To-day we still have the best Air Force, though it is a great deal smaller than it ought to be. But in certain respects the Display on Saturday showed that it is very far from being up to the level of previous years. And in no respect did it show any advance on previous years.

Every squadron was mounted on aeroplanes which have appeared before, and had the same engines. The only evidence of progress in equipment was the entire absence for the first time of the old D.H.9a. And that was only negative progress.

The running of the Display itself, with every event beginning and ending precisely to the minute stated in the Programme, shows that the staff work of the Managing Committee is as good as ever. And the fact that the various performers, whether whole R.A.F. units or individuals, got off and landed precisely to time shows that as a whole the discipline of the Air Force is as good as ever. Furthermore the aerobatic flying showed that the individual pilots are fully up to standard. But much of the formation flying was simply terrible.

Admittedly the air was bumpy. But the good formations were as perfect as ever, so the bad formations must have been examples of sheer inherent badness.

The Matter of Formations.

There are those who hold that formation flying is not necessary; that it is purely a trick; and that it serves no purpose in war. In actual fact formation flying is an outward and visible sign of an inward and spiritual grace in the squadron.

It is exactly like a march discipline in the Army. A sloppy formation in the air or a sloppy battalion on the march are first-hand evidence that the commanding officer is unfit for his job, or at any rate that, if the existing commanding officer happens to be a good man, that he has recently taken over his unit from a bad one.

One or two of the squadron formations would have been a disgrace to the third line of a Continental Power. And only two or three of the regular formations were as good as the formation of No. 600 City of London Bomber Squadron, Auxiliary Air Force. If amateurs can fly as well as 600 Squadron does then some of the regular squadrons ought to be ashamed of themselves.

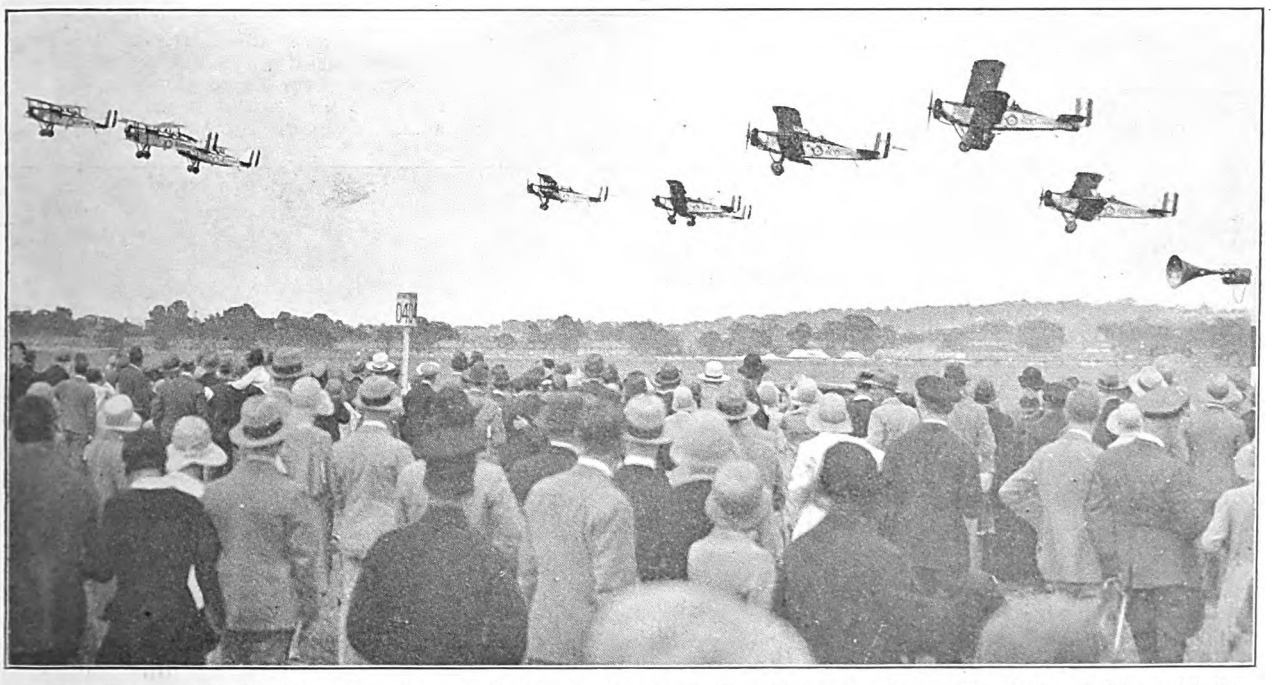
The Root of the Evil.

The cause of this lamentable state of affairs in the regular squadrons can be put down straight away to two essential facts. One is that the weakest link in the chain of Air Force ranks is in the rank of Squadron Leader. The other is that the Personnel Department, or possibly more particularly the Posting Department, does not deal with this weakness in the best possible way.

The reason why the R.A.F. is weak in Squadron Leaders of the type who are best fitted to lead squadrons is because in the list of Squadron Leaders there are a number of men who, though perhaps excellent in war, as individual fighting men, or even as leaders of fighting formations, are not suited to run squadrons in time of peace and to bring them to that pitch of discipline, either on the ground or in the air, which marks a first-class squadron.

"WE HAVE SUCH WEALTH AS ROME AT HER MOST PRIDE HAD NOT, OR (HAVING) SCATTERED NOT SO WIDE:"

(KIPLING—*The Birthright*)



THE AUXILIARIES.—No. 600 (City of London) (Bomber) Squadron, Auxiliary Air Force, taking off in Squadron formation at the R.A.F. Display. The machines are Westland Wapitis (Jupiter). The numbers of young and keenly interested spectators showed the wealth of material which we have for more and more Territorial Squadrons.—(*"Aeroplane" photograph.*)

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Also, among the Squadron Leaders there are men who may be first-class engineers, or first-class staff officers, or may have some other outstanding quality, but simply have not the natural ability to command or lead men or to run the establishment of a squadron. Also, in the list there are men with other disqualifications though they may have compensating virtues.

In spite of these obvious facts, which are, or ought to be, known to everybody in the Air Force, the Posting Department appoints Squadron Leaders apparently at random. If a good Squadron Leader is promoted to Wing Commander, or goes on a Course, or falls sick, the Posting Department seems to take the next available man on the list and appoint him to that squadron, regardless of his qualifications.

If the squadron has had a first-class officer in command before, and happens to have good Flight Commanders, it may hold itself together for a few years till the unsuitable Squadron Leader happens to be moved somewhere else. If it happens to be a slack squadron, and a very good man is put in command, he may pull it together and hammer it into being a first-class squadron within twelve months, and he will probably make himself mighty unpopular in the process.

Even when an officer has been appointed to a squadron he has no security of tenure. He may be pulled out and pushed off to some other job just when he is beginning to get his squadron into shape, merely because the Personnel people happen to have his name down on some list or another as a specialist in some job, because some years ago he did a course at that work. In fact, people seem to be appointed to command squadrons for every possible reason other than that they were intended by Nature to be Squadron Leaders.

The Uses of Variety.

There is every reason in favour of giving a junior officer every possible kind of experience and of making him fly every possible type of machine. But the same arguments do not apply to officers of Field Rank who wear long boots.

If a youngster happens to be a born pilot of single-seat fighters he will be all the better as such for having done a year or two in slow, heavy night-bombers. And if his particular talents lie in the direction of flying twin-engined machines then he will probably be a still better twin-engine pilot for having had an opportunity of breaking his neck on high-speed single-seaters.

Likewise, if he has been in the habit of putting fast machines down on large aerodromes without regard for time or space he will probably improve his performance if he has to go and do deck-landings on carrier-ships for a while. And if he is an Army Co-operation pilot with a talent for picking up messages at the end of a stick with one eye on the ground all the time he will probably be all the better for doing a navigation course and flying blind over clouds for hours at a stretch.

But by the time he has been promoted to Flight Lieutenant he ought to have disclosed some particular ability in some particular direction. And an intelligently staffed Personnel Department and Posting Department ought to know by this time what his particular bright spots are. Thereafter all his appointments ought to be made so that his peculiar abilities may be used for the good of the Air Force. To appoint a man who is a real high-brow staff officer, or a mechanic whose soul is inside an engine, to command a slack squadron is merely likely to make that squadron worse.

Naturally there are first-class staff officers who are also first-class formation leaders, strict disciplinarians and excellent administrators. Such a man is probably a future Chief of the Air Staff. And there are men who are first-class engineers and also first-class commanders of squadrons. Such a man is probably a future Air Member for Supply and Research. But for one such man there are dozens of officers who, without being particularly brilliant in any one direction are excellent leaders of men and have that faculty for being a kind of father of the family which makes the average Battalion Commander in the Army so successful and makes all the difference between a good battalion and a bad battalion.

The Family Spirit.

One of the outstanding faults of the fairly senior officer in the Air Force is precisely that he does not make himself the father of his officers and men so much as he should. There ought to be a definite regulation that every Group Captain or Wing Commander commanding a station should dine in Mess at least once a week, other than on a Guest Night, and should personally take Church Parades at least once a fortnight. One says this because most of what has been said about Squadron Leaders applies also to the two ranks immediately above, though perhaps in a less degree.

No Squadron Leader should dine out of Mess more than three nights a week. That alone would make all the difference in the close touch which should exist between the commanding officer and the junior officers. If he happens to be married, he must sacrifice some of his home life to the good of his squadron.

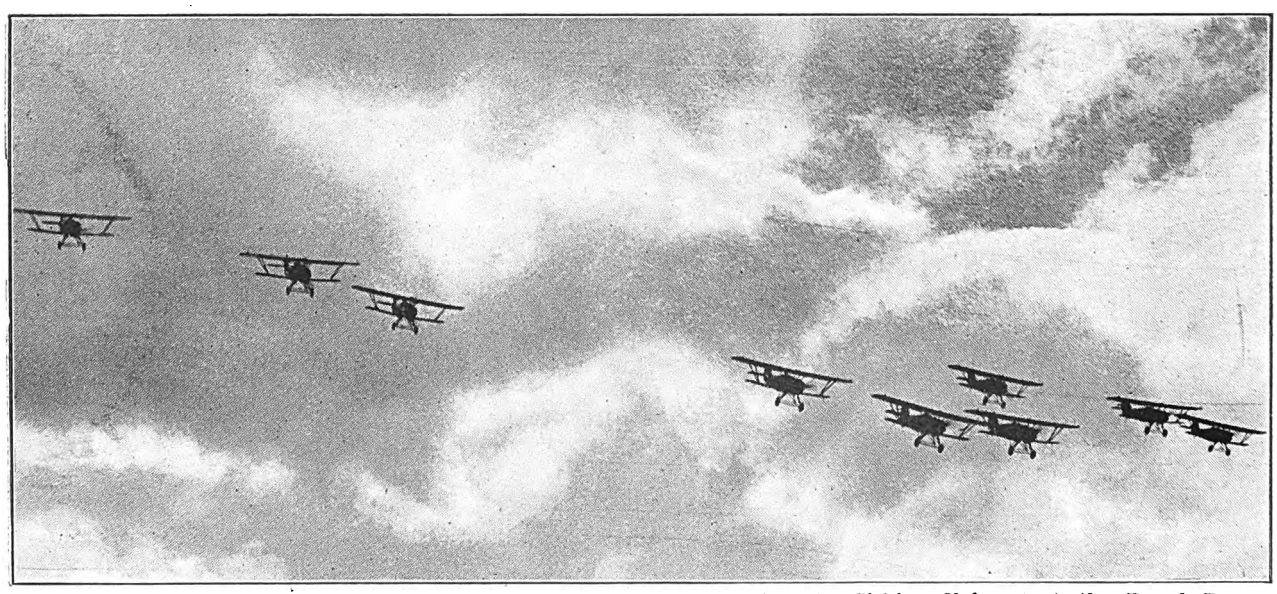
Until something like this kind of touch is established, and until Squadron Leaders are chosen deliberately for their ability as commanding officers, the average level of squadrons in the R.A.F. will not reach that point which at present is only reached by certain crack squadrons and should be reached by every squadron.

Aerobatics.

Another thing at the Display which struck one as being below the usual standard was the aerobatic flying. The combined aerobatics had nothing like the precision and slickness and perfect timing which was shown by the two pairs of pilots who performed last year. Three of those four pilots, Mr. Jones and Mr. Purvis and Mr. Clarke were killed after the Pageant in purely foolish accidents caused by sheer over-confidence amounting to carelessness. So admittedly perfection in aerobatic flying does not necessarily make a safe pilot. But there is no reason why a safe pilot should not be a perfect stunt pilot.

We have had no better display of individual aerobatics than was given two years ago by a quite senior war-pilot who had spent about four years on an office chair in the Air Ministry and had only taken to flying again a few months before the Display. Which is probably why, instead of being set to put the right spirit into a slack squadron, he has been lent to a foreign Power as an advisor to its Air Force.

Certainly one of the most effective parts of the show, and about the finest exhibition of skilful flying, was the display of converging bombing by four Naval officers in Flycatchers. Precisely why Naval officers should have been selected to display what is essentially an operation of land warfare



ON THE DIVE.—One of the Fighter Squadrons in Armstrong Whitworth Siskins diving past the Royal Box during the formation flying by three Fighter and three Day Bomber Squadrons.—(*"Aeroplane" photograph.*)

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FIRST and only formation flight from England to Australia—180,800 engine miles without mechanical trouble. NAPIER *engines*

For five successive years four aircraft have flown in formation from Cairo to Cape Town and back, covering in all an aggregate of 208,000 engine miles without trouble. NAPIER *engines*

on LAND

World's land speed record. The late Sir Henry Segrave driving his Irving-Napier set up the World's land speed record of 231 m.p.h. NAPIER *engine*

Capt. Malcolm Campbell with his Napier engined Bluebird set up World's land speed records for 5 miles—211 m.p.h.—and 5 kilometres—216·03 m.p.h. NAPIER *engine*

on SEA

The World's record speed for single engined motor boats, the Championship of the World, Championship of Germany and Championship of Europe were secured by the late Sir Henry Segrave driving his Napier engined Miss England. NAPIER *engine*

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was not explained. But they certainly deserve full marks for the way they handled the machines.

One jealous R.A.F. officer, who wished he had been in the show himself, suggested that Flycatchers were selected because no matter how you dived them to the limit and pulled them out you could not pull the wings off,—and that was why they were given to ham-handed matelots. Be that as it may, officers of the High Speed Flight who were accustomed to flying the fastest aircraft in the World have told one that the old Flycatcher still has quite a good turn of speed and is amazingly obedient in handling. But perhaps the most astonishing thing is that anybody should put into a Display in 1930 a machine which was first produced somewhere about 1922.

The Need for Pageantry.

In various other respects the show seemed to be less vivid than of old. Perhaps, as various people have suggested, the ever-increasing fear of a public crash caused the higher officials to put the soft pedal on the more enthusiastic pilots. Every year those who are inclined to be pessimistic say that never having had a crash at the Pageant we are getting that much nearer to a crash year by year. And so there may be an inclination to play for safety. And personally one would be the last person to advocate doing anything which would be really dangerous. But surely something could be devised which would be impressive without increasing the danger?

After the show was over a well-known member of the Aircraft Industry who had recently been to the French Display at Vincennes remarked how much more impressive the Display by the French *Armée de l'Air* was in one respect,—which could quite easily be surpassed in this country.

A day or so before the Vincennes Display he had flown round to various aerodromes near Paris and at each of three of those aerodromes he had found 150 machines massed ready for the show next day. At the appointed time those 450 machines took off and assembled in the air over a prearranged place, and from there they flew in mass formation over the aerodrome at Vincennes where many hundreds of thousands of people were assembled.

He admitted that the individual formations were not up to our highest standard, but they were better than our worst. And he said that the enthusiasm aroused and the immense impression caused by those 450 machines sweeping over the crowd in one huge mass was indescribable.

Against such a display our 54 machines would seem futile. And even they did not come over the aerodrome in the most impressive formation. They would have looked much better in a long column of flights ahead instead of straggling all over the sky the way they were.

Showing Off.

In another way the French show was more effective. Instead of having the exhibition machines, such as those which are displayed in what we call the New Type Park, taken out and flown by serving officers, who may or may not be the most suitable individuals to fly each particular machine, the French have their corresponding machines flown by the test pilots of the makers of the machines, and these test pilots are allowed a certain time in which to put up their individual shows. Consequently each machine is shown off to very much better advantage than it can possibly be when flown by a pilot who has not had the machine to play with from the beginning and who naturally has not the same commercial or personal incentive to show it off.

Probably the official objection to such a proceeding at the R.A.F. Display would be firstly that the R.A.F. Display is essentially a Service affair and secondly that possibly the firm's test pilots might smash their machines and themselves in showing them off. The answer is that practically all our test pilots are officers of the R.A.F. Reserve, and that being, in other respects, civilian pilots they would not be an immediate loss to the R.A.F. if they did crash themselves. Furthermore, if they broke their machines up it would not be a good advertisement for the makers, and therefore they could be fairly well trusted to look after themselves.

One offers these suggestions to those who will be organising the Display next year in the hopes that they may find in them the germs of something useful.

The New Type Park.

Writing of the New Type Park reminds one that it was the subject of two or three quite witty remarks. This exhibit is always interesting, although it does not consist by any means of new types. There was nothing particularly new for example about the Westland Wapiti or the Blackburn Lincock. And just why the Saunders-Roe Cutty Sark and the De Havilland Puss Moth appeared in an exhibit of war machines is difficult to explain.

The Supermarine—Rolls-Royce S.6 and the Gloster—Napier VI naturally attracted a great deal of attention. Although they also can hardly be classed as war machines,

PREPARING FOR THE GREAT DAY.—A Fairey III.F (Napier Lion) Day Bomber flying over two unperturbed horses and an interested grass-mower during a rehearsal for the R.A.F. Display. The picture is reminiscent of the French farmer who ploughed steadily all day between the Armies during the Battle of Sedan, 1870.

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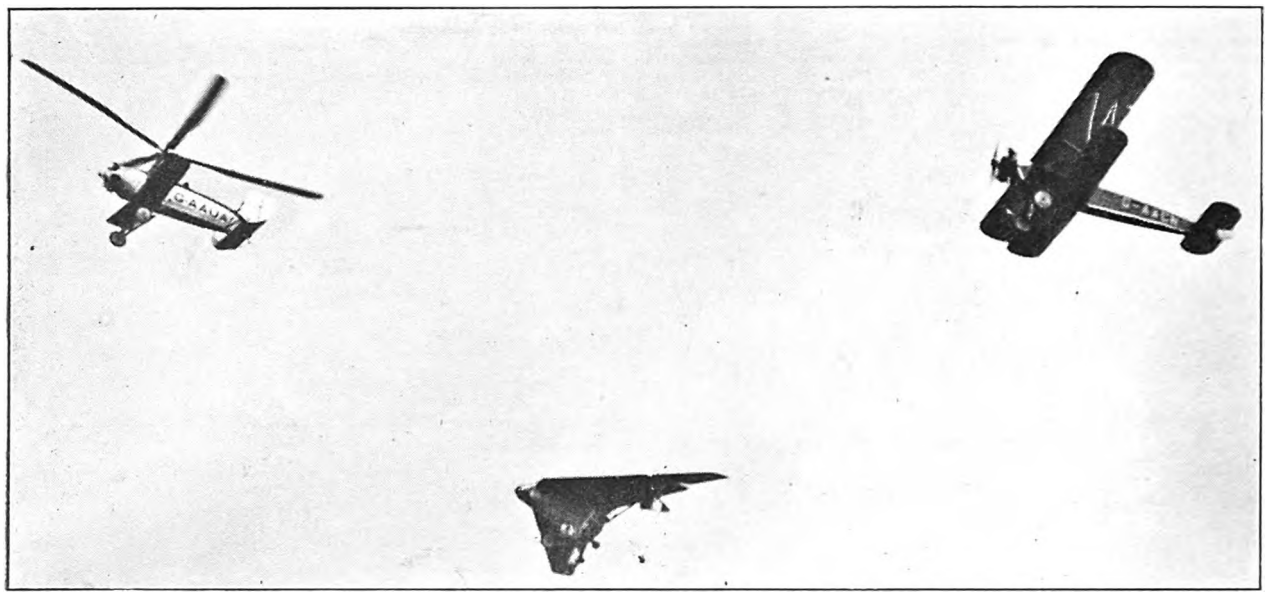


THE THREE GRACES.—The Cierva Autogiro, the Westland-Hill Pterodactyl and the Handley Page Gugnunc in formation. —(*"Aeroplane" photograph.*)

they certainly have in them the elements of a type which we shall need badly, and naturally shall not have, when the next war starts,—that is to say, the real photographic scout to go and see what the enemy is doing 200 miles behind the lines and come back with photographs ready developed in about an hour and a half.

Apparently one of the worst troubles of the Air Ministry is to know what to do with a good many of the machines in the New Type Park, which are not adopted as standard equipment for the R.A.F. One senior R.A.F. officer in conversation referred to this enclosure as Moss Bros. (commonly pronounced Mossbross), because, he said, all the misfits of the best firms went there. (Probably our brethren from Overseas, who habitually come Home and want clothes in a hurry will appreciate this jest.)

One retailed this joke to one of the high scientific authorities of the Air Ministry, who replied, "Well! Personally I prefer to call them the Insoluble Residue."—Which is just what a Scientist *would* say.

At any rate, some of the makers of the misfits can console themselves with the thought that although not adopted for one reason or another their types may have a higher performance than those types which have been adopted. And if an immediate use for them seems to be an insoluble problem, the knowledge gained from them generally gives the makers an advantage in the next competition for Air Ministry orders.

THE INCOMPREHENSIBLES.

Of all the new and experimental types in the Park none caused more interest and certainly none caused as much amusement as did the Pterodactyl, the Gugnunc and the Autogiro flying in formation. One of the leading men in the Aircraft Industry regarding them with pain remarked, "At any rate they help me to understand that phrase in the Athenasian Creed which says, 'and yet there is not one incomprehensible but three incomprehensibles.'"

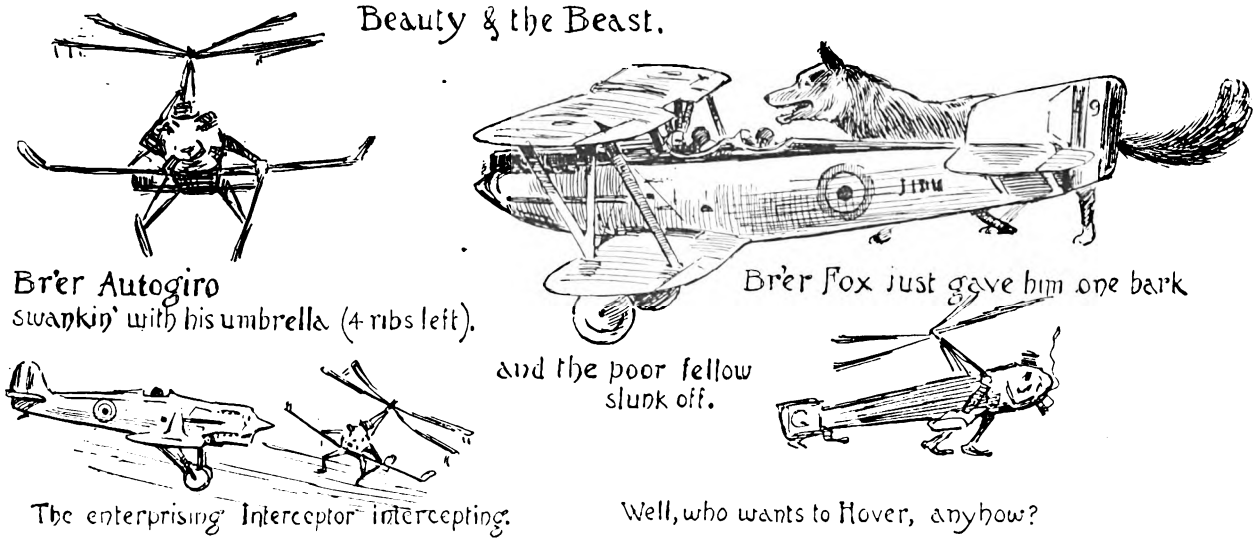
Certainly these three machines are a puzzle. The Gugnunc is the most easily comprehensible. It is a very ordinary biplane fitted with slots to the limit.—at any rate so far as present ideas of wing-structure go. The Pterodactyl looks comic, but there is certainly something in the idea. The Autogiro in its present form seems to be a quite impossible flying machine. Personally nothing would induce one to hang on a revolving joint in a machine which has no way at all of getting down if anything goes wrong All sorts of things can break in an ordinary aeroplane and yet a skilful pilot can get it down. Whereas if any one of several things goes wrong in an Autogiro. there is nothing for it but a parachute, with a sporting chance of being decapitated when you stand up in the cockpit to go overboard. And yet the thing has its points.

Can it be that the ultimate aeroplane will combine the qualities of all three? That is to say, will it be a tail-less thing like the Pterodactyl with little autogiros along the leading edge of the wings, in the way already imagined by Dr. Thurston, possibly with auxiliary slots along a lower plane, or in the wing behind the autogiros? The result would probably be a terrifying sight, but one might get used to it,—if one survived.

THE DISPLAY PROGRAMME.

The actual flying in the Display is described hereafter by Mrs. McAlery strictly from the R.A.F. point of view. Mr. F. D. Bradbrooke, who recently joined the staff of THE AEROPLANE and has gained his experience of flying from watching it as a machine-gunner in France and from learning to fly at the Winnipeg Aero Club, describes the Display as it strikes him, seeing it for the first time. And Mr. Leonard Bridgman deals with the more technical aspects of the machines in the New Type Park. Therefore one has little to say about the individual events.

But one would like to draw the attention of the readers of this paper again to the brilliant staff mind which conceived the idea of making the Set Piece the destruction of a Pirates' Lair. All these foolish pacifists who regard our



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SPEED 134·3 m.p.h.

Class C. First category Light Aircraft up to 400 Kgs. 2-seater, Aircraft D.18 of the Darmstadt Flying Academy with 100-110 h.p. Armstrong Siddeley Genet Major engine, on the 23rd April, 1930, at Darmstadt; 214.848 Kms. (134.3 miles) per hour over 100 Kms. (62.5 miles).

HEIGHT 26,868 feet

Height Record by the Academical Flying Group, Darmstadt, on a 100-110 h.p. Genet Major engined D.18 aircraft, 8,142 metres (26,868 ft.).
Light aircraft, 3rd category (single-seaters weighing less than 350 Kgs), altitude (France), Albert monoplane, fitted with 80-88 h.p. Genet engine at Le Bourget, 11th February, 1930; 7,730 metres (25,509 ft.).
Class C. First category Light Aircraft up to 400 Kgs. 2-seater, Aircraft D.18 of the Darmstadt Flying Academy with 100-110 h.p. Armstrong Siddeley Genet Major engine, on the 21st April, 1930, at Darmstadt. Height 7,521 metres (24,819 ft.).
Height Record for light water flying craft on 80-88 h.p. Genet engined Junkers Machine, single-seater 5,700 metres and 2-seater 4,700 metres (15,510 ft.).

ENDURANCE 1,553 miles

Light aeroplane, 3rd category, single-seaters, weight 200-350 Kgs. (440-770 lbs.), distance in a straight line, 17th July, 1929; D. S. Zimmerly, Barling, U.S.A., N.B.3 80-88 h.p. Genet, 2,500 Kms. (1,553 miles).

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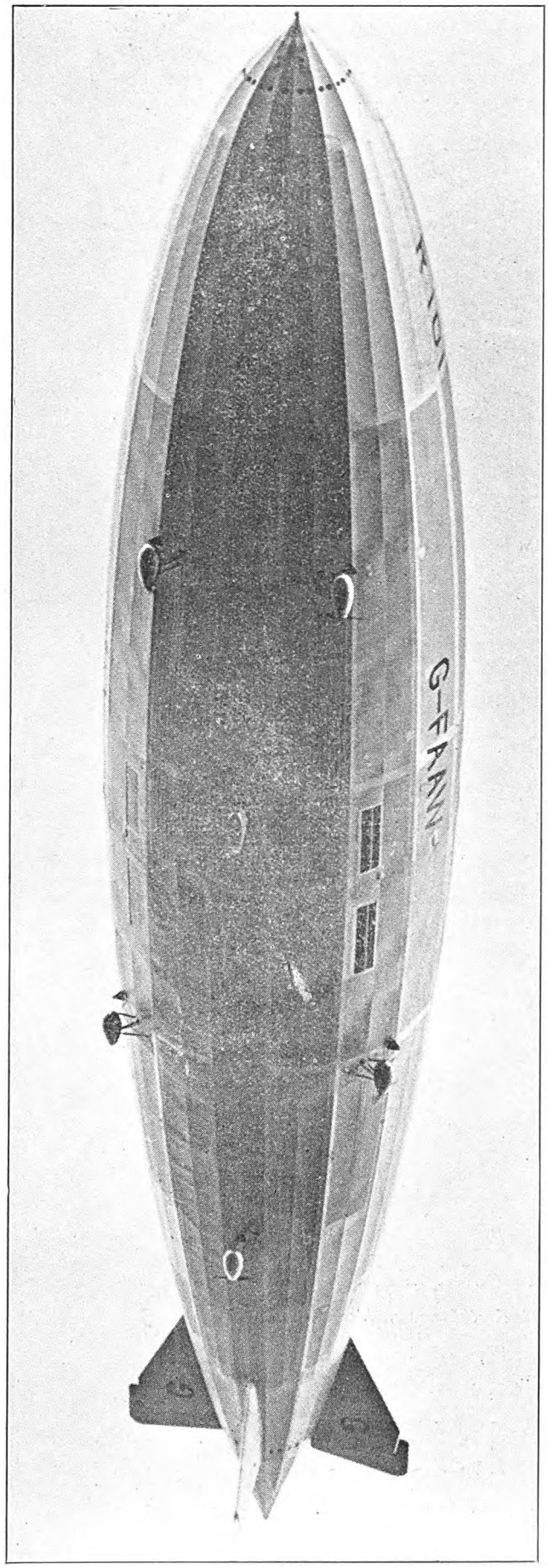

THE MONSTROUS VISITOR.—The Airship R.101 flying over the R.A.F. Display at Hendon on June 28. The thing was impressive by sheer bulk, but did not impress by speed, manœuvrability, or outward finish. About the best that could be said of it was that it meant well.—(*"Aeroplane" photograph.*)

present Government as being more or less of their way of thinking (which, incidentally, is no compliment to the Government), would certainly have found an excuse for making themselves unpleasant if the Set Piece had been a raid on some cut-throat border tribe, or the bombing of a Bolshevik stronghold, or any of the many things which will certainly happen in our War with Russia within the next few years.

Therefore one feels justified in quoting here again the delicious reply given in the House of Commons on May 14, in reply to a question by Mr. Mander. Our good Mr. Montague, Under-Secretary of State for Air, said that the programme for the R.A.F. Display had now been settled, and that there would again be a Set Piece, which this year would illustrate air action undertaken by this country against certain pirates, *in full conformity with, though not arising out of, its obligations under the Covenant of the League of Nations and the Kellogg Pact.* The which is a pure joy.

One humorist regarding the buildings before they were destroyed, said that he really thought that the event ought to be called "The Pulverisation of Purley,"—because the architecture was precisely that which prevails in that self-satisfied suburb. Perhaps the Pirates of Purley would hardly be a just description of the average inhabitant, for the pirates would certainly be the estate-agents, builders, contractors, and so-forth, and the normal inhabitants would merely be their victims.

Our Socialist Airship.

R.101 is to be congratulated on having appeared. Although our airships are interesting experiments they are not exactly reliable vehicles as yet and they have rather a habit of not appearing on schedule time. But, having appeared, the skipper of R.101 might at any rate have brought her down so that people could have a good look at her.

Compared with the way the *Graf Zeppelin* habitually scrapes over things with about ten feet to spare (see pictures of the Stadium at Wembley) R.101 might at least have come down to an hundred feet feet instead of sticking up somewhere about a thousand, and she might have circumnavigated the inside of the aerodrome instead of merely crossing over it.

Incidentally, certain Press Agency photographs show that R.101 approached within easy photographic distance of the Oval during the sacred ceremony known as Defending the Ashes,—otherwise playing cricket against Australia. And, for some curious reason, no newspapers have shrieked about the sacrilege. But then, of course, the popular Press does not run coupon competitions about cricket matches as it does about Football Cup Ties.

Our Poor Parachutists.

The parachute show, though it was an excellent example of the ability and courage and tenacity of our parachutists, was a pretty poor thing as a display compared with what other nations have done. Almost everybody who has been to the movies within the last three months has seen an exhibition given by the U.S. Army Air Corps of twelve parachutists coming out of one tri-motor Ford in about twelve seconds. And anybody who has seen last week's The Aeroplane has seen a photograph of sixteen Italian parachutists who had just come out of two Capronis.

How can we decently put up against such exhibitions six pull-off drops from three antiquated Vimys? Either we ought to do the thing properly or not do it at all.

And why should our six gallant airmen have to hug the struts of the aged Vimys for half an hour or so at a stretch when they might be sitting comfortably inside a Victoria till their turn came to jump? The answer is that if any parachute refuses to open it does not pull the man off the machine, whereas if he had to jump and then pull the string and the parachute refused to work he would be killed.

Personally one is in favour of not doing this act at all, because one regards all parachute drops as pandering to the worst tastes of the mob. But if we are going to do it let us do it thoroughly. There would certainly be no lack of volunteers in the R.A.F. for the privilege of risking their necks to make a Hendon holiday.

Suggestions to the Management.

A feminine spectator made a suggestion which might be worthy of the consideration of the new Permanent Secretary of the Pageant, Air Commodore Drew. It is that in future instead of supplying hard chairs in the enclosures deck chairs might be provided. They would be more comfortable to sit upon and they would effectually stop people from standing on chairs and cutting off the view of those in the promenade behind them. Possibly the room taken up by a deck chair might be an objection, so those other folding chairs which certainly cannot be stood upon, might be used.

A Tactical Error.

The management of the R.A.F. Display made rather a grave tactical error in not allowing the Press photographers to pass along the front of the Royal enclosure to take photographs. The regrettable absence of the King and Queen,

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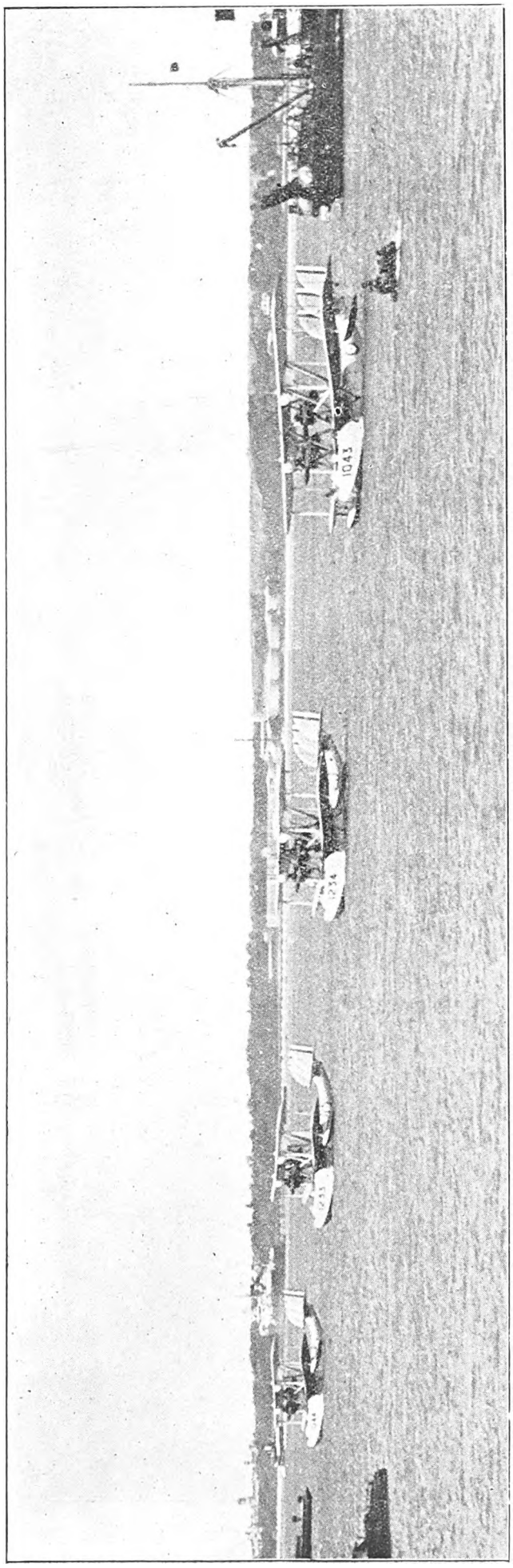

AT HOME.—No. 201 (Flying-boat) Squadron, R.A.F.—Supermarine Southamptons (two Napier Lions)—moored in the Solent. These are the craft which appeared at Hendon.

whose duties called them to confer the honour of their presence on events in which the feelings of Overseas Dominions (at Lords) and foreign nations (at Wimbledon) were concerned, certainly detracted somewhat from the desire of the ordinary Press photographer to take photographs of the Royal Enclosure. But there were quite enough celebrities there to have made photographs interesting. And unfortunately such photography was not allowed. The Press photographers were prevented from taking any photographs other than at such an oblique angle that they were useless.

Although one is opposed to allowing Press photographers to inflict their unpleasant presences individually on persons of note, one cannot see the slightest objection to allowing a gang of photographers to pass along the front of the enclosure at a reasonable distance from the railings taking such snapshots as they could while passing along. Or Press photographers with telephoto lenses might be allowed to station themselves 20 or 30 yards from the railings of the enclosure on the grass of the aerodrome itself and take their photographs at leisure. But to prohibit the taking of such photographs is merely depriving the Display of such advertisement as might be had by the publication of the photographs of our modest notabilities.

For All Our Faults.

Taking it all round the 1930 Display was a thoroughly good show. At any rate no other country could approach it in a great many ways. And if one has felt called upon to criticise certain things about it, one holds that those criticisms are wholly justified and all grounds for them can be removed before the next Display. So, on behalf of all who are concerned with British Aviation one tenders to the R.A.F. sincere thanks for a splendid day's entertainment and one wishes the Air Force further progress in efficiency, quality and equipment between now and the next Display.—C. G. G.

THE "COMING WAR."

The following article, published in *The Times* on June 26, from that paper's well-informed correspondent in Riga (Latvia), will be of interest to those who believe in either the foolish idea of universal peace and goodwill among men, or in the possibility of peace with Russia:—

Izvestia has started collecting and publishing statements from literary men throughout the world in which they explain what part, if any, they intend to play in "the coming war" against the U.S.S.R.

The first instalment of statements from writers in Great Britain, Germany, France and elsewhere, mostly accompanied by their portraits, occupies a whole page of *Izvestia*, together with the comments by Radek, who explains that the statements have been obtained through the International Bureau of Revolutionary Literature, founded in Moscow in 1925, which canvassed writers to ascertain their attitude on this subject, which he represents as being not merely a literary question but a matter of life and death for the whole of humanity.

Owing to the "urgency" of the case inquiries were transmitted in some cases telegraphically, and were repeated if a reply did not come promptly. Radek classifies the writers into three groups—revolutionary soldiers, friends, and enemies. The first group is composed of those who replied enthusiastically that they were willing to sacrifice themselves for the defence of the U.S.S.R.; "friends" replied sympathetically, and will hamper any preparations for war against the U.S.S.R.; "enemies" maintained silence.

Izvestia publishes statements obtained from Mr. Galsworthy, Mr. H. G. Wells, Mr. Bernard Shaw, and Miss Ellen Wilkinson. These, except Mr. Shaw, briefly express disapproval of war. Mr. Shaw simply replies, "They will probably hang me." Radek accordingly carefully warns Mr. Shaw to watch his old Fabian friends and the Labour Party for fear that they may already be greasing the noose for his neck.

THE LEAGUE OF NATIONS.

In the House of Commons on June 25 in reply to a question by Mr. Mander, the Under-Secretary of State for Air said that the facilities to be afforded in times of emergency to aircraft used for communications of importance to the working of the League of Nations were the subject of a resolution to be submitted to the next session of the assembly, but this resolution contained no request for the earmarking of aircraft or of pilots for League use in case of emergency.

IN JUSTICE.

The climbing of Jonsong Peak by members of the Kanchenjunga Expedition does not, as implied in The Aeroplane and elsewhere, constitute a "terrestrial height record." The British expedition to Mt. Everest reached an altitude well over 24,500 ft. and when last seen the ill-fated Mallory and Irvin were said to have been climbing at about 28,000 ft.

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THE ELEVENTH ROYAL AIR FORCE DISPLAY.

BY C. M. MCALERY.

The Eleventh Annual Display of Service Training was given by the Royal Air Force at Hendon on June 28, and was even better than its predecessors.

The curious mental outlook of aviators and those who follow their fortunes always leads to prophecies of disaster each year as the date of the Display approaches. One hears gloomy forebodings that this year there is bound to be a crash, or that it will pour with rain all day. One has even heard that there will probably be a fog. Less pessimistic prophets say that the R.A.F. has reached the peak of its efficiency and that this year the formations will not be quite so good, the bombing will be less accurate, and that the Set Piece will undoubtedly fail to burn. For this last the Treasury is always blamed for being mean with the explosives and incendiary material.

However when the great day arrives this gloomy outlook disappears as quickly as the clouds which are always on the horizon at sunset the night before are wiped off the sky by a benevolent Deity. The attitude is precisely that of those pagans who touch wood or cross their fingers at the thought of impending evil.

The Royal Air Force Display, as apparently everybody does not know, is given at the end of the year's training and is a comprehensive demonstration of the work of the Service. There can be very few Units in the Home Command which are not called upon to exhibit some part of their work during the year.

The organisation, which is unequalled in efficiency anywhere in the world, is the work of the Air Ministry and of Headquarters Staffs. Not content with this, each Headquarters sends a representative pilot and machine to compete in a race, an interesting demonstration that the Staff Officers of the R.A.F. are equally at home in the air and at their desks (or tables, g.s. 6 ft. x 4 ft.).

Flying training in all its branches is demonstrated,—from the crazy-flying antics of the standard training machines of the Flying Training Schools to the complicated formation flying by the fully-trained Squadrons.

Army Co-operation and the work of the R.A.F. with the Fleet are represented. The Experimental Establishments show their year's work. The Armament and Gunnery School, the Wireless School and the Stores Branch are in continual evidence.

Their ever-increasing efficiency has made the Auxiliary Air Force a prominent feature in the programme, and the Reserve training in civilian flying schools is demonstrated in a race. The Medical Branch and the Central Band play their parts. And who shall deny the influence of the Chaplains' Branch and the Meteorological Department?

The smart and courteous bearing of the airmen and aircraft-apprentices who direct the spectators and sell tickets and programmes is there for all the world to see. And behind the scenes is the backbone of the whole Service, the Non-Commissioned Officers and airmen whose energy and efficiency and pride in their work keeps the Royal Air Force in the air.

The Royal Air Force Display is in aid of R.A.F. Charitable and Philanthropic Objects. Last year, when all expenses had been paid, it gave £9,000 to the R.A.F. Memorial Fund which, in memory of those who fell in action, looks after those who have fallen on hard times.

THE STAFF HANDICAP.

The Display began at 12.00 hours with the Headquarters' Race, a handicap of about 28 miles, open to one officer from the Air Ministry and one from each Headquarters of Commands in England, for a Cup presented by H.R.H. Group Captain the Duke of York, K.G. The entries were:—

Air Ministry:—Wing Cdr. P. C. Maltby, D.S.O., A.F.C., Gloster Gamecock (Jupiter).

Air Defence of Great Britain:—Sq. Ldr. H. G. Bowen, M.B.E., Gloster Grebe (Jaguar).

Coastal Area:—Flt. Lt. R. H. Barlow, Fairey Flycatcher (Jaguar).

Inland Area:—Wing Cdr. J. H. Herring, D.S.O., M.C., Armstrong Whitworth Siskin (Jaguar).

Wessex Bombing Area:—Flt. Lt. D. W. F. Bonham-Carter, Bristol Fighter (Rolls-Royce).

Fighting Area.—Flt. Lt. G. H. Stainforth, Gloster Grebe (Jaguar).

Cranwell: — Sq. Ldr. P. G. Scott, Armstrong Whitworth Siskin (Jaguar).

Halton:—Flt. Lt. C. D. Adams, Armstrong Whitworth Siskin (Jaguar).

The race was won by Halton (for the second year in succession), with Inland Area second and the Air Ministry third.

ARMY CO-OPERATION.

The advanced work of R.A.F. Army Co-operation Units would be impossible to demonstrate within the restricted space of Hendon Aerodrome. The authorities are therefore very wise in giving the spectators an exhibition of the somewhat primitive but very spectacular method of picking-up messages to which resort has to be made by the R.A.F. when co-operating with ground forces which are not equipped with Radio Telephony, Wireless Telegraphy or any other means of communication. The message is placed in a message-bag attached to a loop of cord and suspended from a string between two posts or lances. The message is

THE R.A.F.'s ANNUAL PARTY.—A view from the Stand of the 10s. enclosure at the R.A.F. Display at Hendon. The crowds this year were greater than ever. In the background are the sheds of the two London Squadrons of the Auxiliary Air Force.

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collected by means of a hook which is a standard fitting suspended underneath the aeroplane. The crew of the aeroplane haul in the message, read and answer it and drop their reply on a return journey over the ground forces. The special interest of this method of communication is that it has many times been used with success in those minor wars in which the R.A.F. has taken part since the signing of the Treaty of Versailles and the coming into being of the League of Nations.

To add to the public interest in the demonstration, this year it was made by six machines instead of by one only. The machines were Armstrong Whitworth Atlases (Jaguar) of No. 2 (Army Co-operation) Squadron and they operated by Flights, which kept perfect formation throughout in a way which was somewhat reminiscent of tent-pegging by three Lancers at a time at the Royal Tournament at Olympia. The three message bags were to be seen streaming out behind the formation.

The time taken between the hooking of the messages by a Flight and the dropping of the reply was four minutes. Longer time was taken in a recorded instance of recent years when the message from a stranded aeroplane in the Arabian desert read simply and concisely "Beer," because the other pilot had to make a journey of some distance and return with a case of bottles and a large parachute, but that is another story.

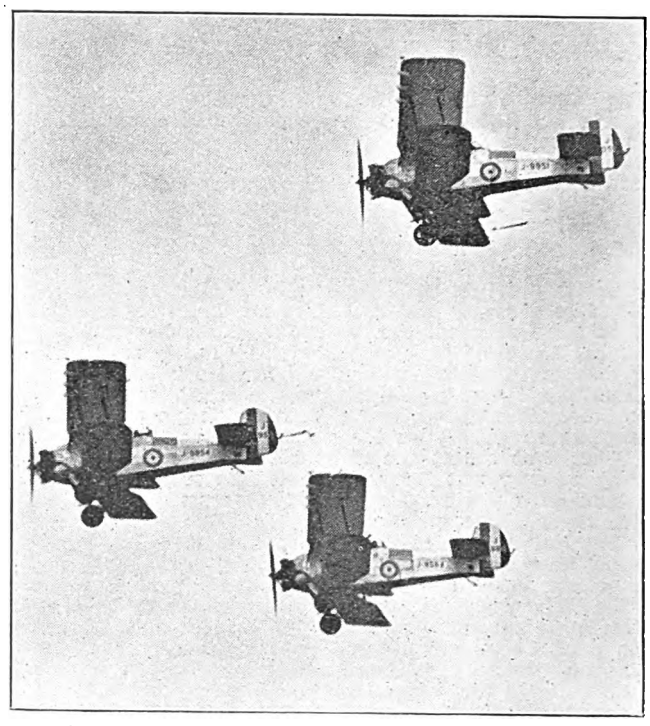
Sad to say one formation missed all the bags in the second round, and no doubt they heard all about it shortly afterwards from their Squadron Leader.

Synchronised Stunting.

To have the honour of displaying their own skill and judgment, the aerobatic qualities of their machines and the efficiency of their Squadron, falls annually upon four pilots of the Fighting Area by virtue of keen competition. Eliminating trials within the Squadron send the best pair of pilots out against the other Squadrons. A Committee, to whom Solomon's job would have been child's play, decide the best and the second-best pairs.

The best pair are reserved for the afternoon part of the Display, but one doubts whether even with the greater number of spectators, they get more whole-hearted admiration than the second-best pair, who come before the view of many is blocked by the crowds, and those who can see are charged with wonder. This year the second-best pair were Flg. Off. R. Stokes and Flg. Off. C. K. Turner-Hughes of No. 56 (Fighter) Squadron.

Individual notoriety is abhorrent to the *personnel* of the R.A.F. and although names are not withheld from the Display Programme the credit for their performances belongs to the Unit as such rather than to the individual. Therefore, the aerobatic display by No. 56 (Fighter) Squadron was one of the best that one has ever seen, and was in every way worthy of the great traditions of the Squadron. The two pilots approached the aerodrome in formation at a considerable height and came down about 1,000 feet in a spin. Recovering from that they proceeded to put the spectators through ten minutes of hair-raising, heart-stopping thrills. They rolled slowly across the aerodrome and looped back. They dived nearly to the ground and soared up again to finish the climb with a half roll. There were no pauses while they manœuvred into position. The whole thing was so well timed that the movements merged into each other and made one triumphant whole.

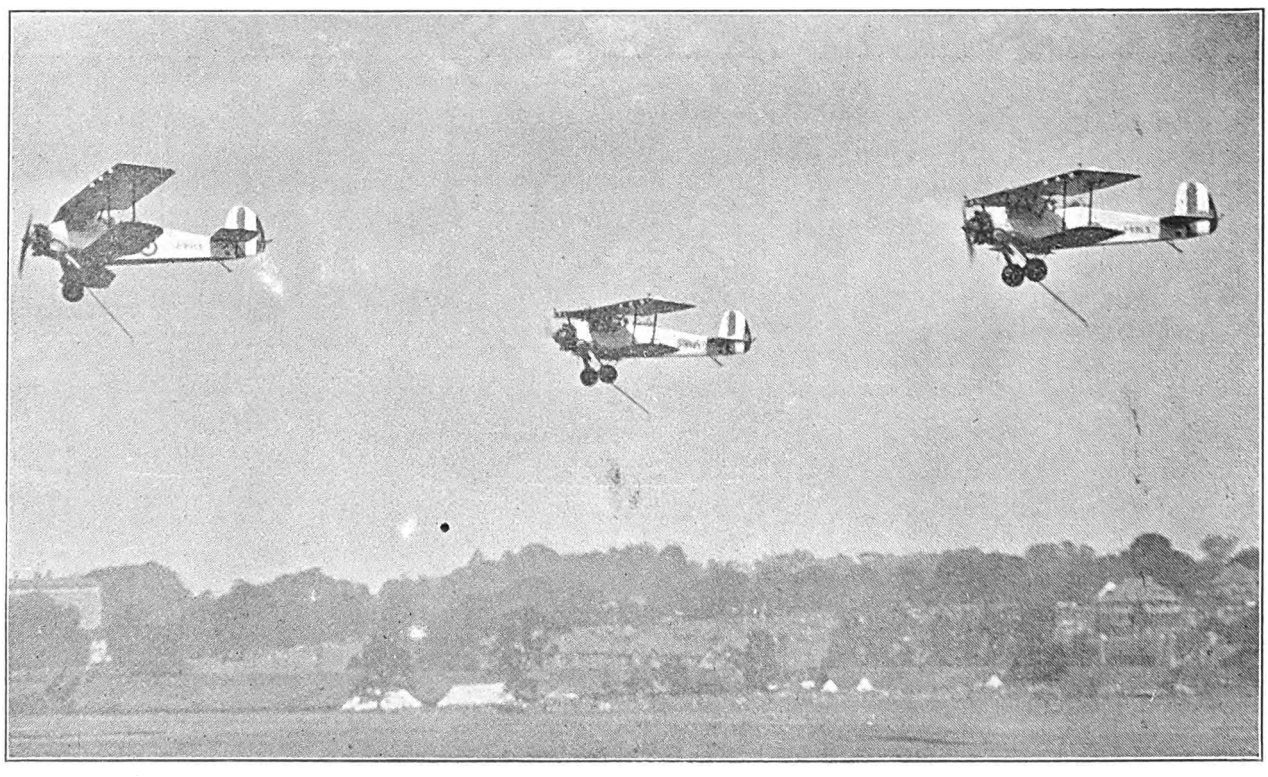


ARMY CO-OPERATION.—Three Armstrong Whitworth Atlas (Jaguar) machines of No. 2 (Army Co-operation) Squadron after they had hooked the messages from the Ground Forces.—(*"Aeroplane" photograph.*)

The Reservists.

The annual flying training of officers of the Reserve of Air Force Officers is done at certain civilian flying schools by arrangement with the Air Ministry. A Reserve officer is selected by each of these Schools to take part in a race at the Display over a course of about 28 miles. This year the machines were all standard De Havilland Moths (Genet). The competitors were:—

Flg. Off. G. H. de Havilland, the De Havilland Aircraft Co. Ltd., Edgware; Flg. Off. R. W. H. Wright, The Bristol Aeroplane Co. Ltd.,



FISHING.—One of the Flights of No. 2 (Army Co-operation) Squadron about to pick up messages from the ground at the R.A.F. Display.—(*"Aeroplane" photograph.*)

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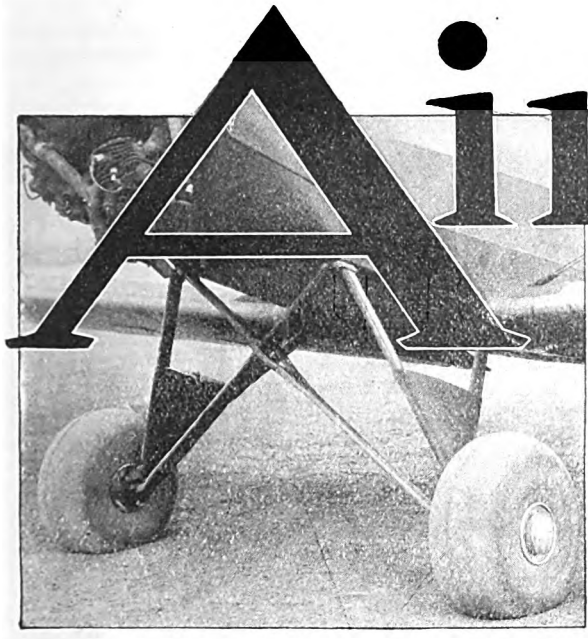

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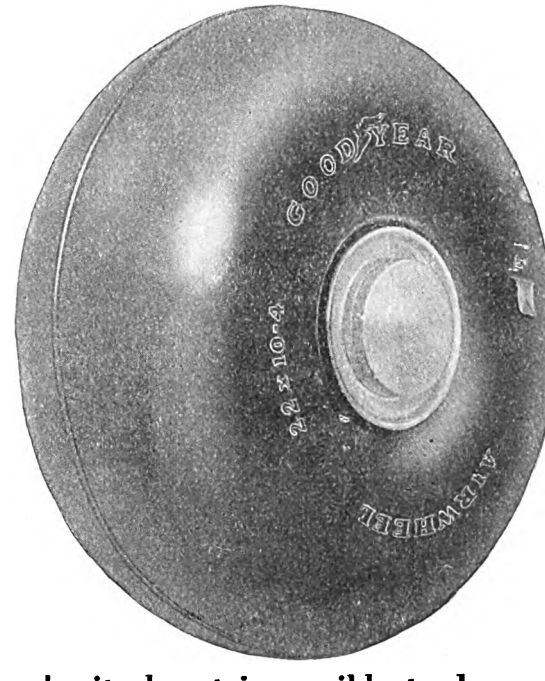

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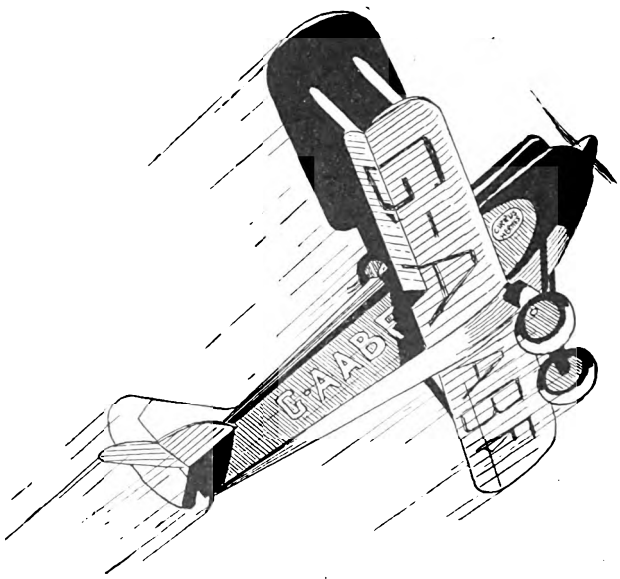

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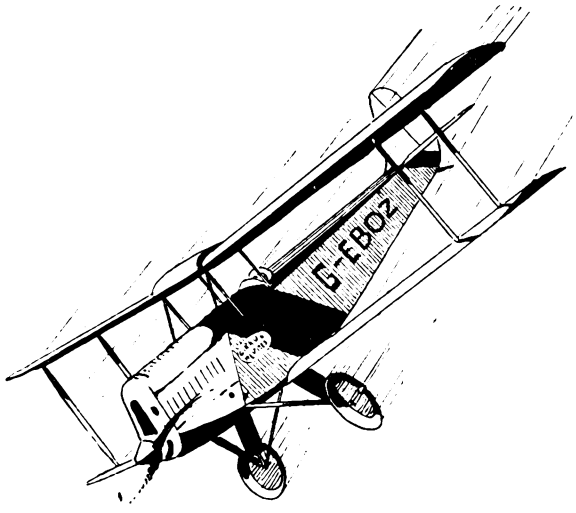

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1928
SIDDELEY TROPHY
Miss Winifred Spooner
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Sqdn. Ldr. B. Hinkler, A.F.C.
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The winner was Flg. Off. S. M. Thomas.

AUXILIARIES.

Those who had not seen the Auxiliary Air Force in the air before were astounded at the display of formation flying by No. 600 (City of London) (Bomber) Squadron. This Squadron is commanded by Sq. Ldr. the Rt. Hon. F. E. Guest, C.B.E., D.S.O., and is equipped with Westland Wapitis (Jupiter). Except for a very small *cadre* the *personnel* of this Squadron, in common with all Squadrons of the Auxiliary Air Force, consists of what was known in the days before the War 1914-18 as Saturday-to-Monday-Soldiers. Just as these Week-End-Warriors proved themselves in 1914 so have the Week-End-Air Force proved themselves in the last few years.

During the Air Exercises of 1928 an evening newspaper described the *personnel* of the Auxiliary Air Force, picturesquely, if not quite accurately, as consisting of Butchers, Bakers and Candlestick-makers. They are worthy of even more credit than if this were true, because they are not men to whom a week-end of engineering would be a holiday. They are men from the Aircraft Industry and kindred trades who, having worked with engines all the week, spend their week-ends at what is, after all, a busman's holiday. Where there are vacancies the unskilled man who is keen is welcomed in the R.A.F. but there are very few vacancies for unskilled men in such crack Squadrons as those of the City and County of London.

One cannot give greater praise to the formation flying of No. 600 (City of London) Squadron than to say that they are as good as the Regulars.

WAR IN THE AIR.

Quite what the Horsley, the hero of long-distance flights, has ever done that it should be painted red and attacked by three savage Bulldogs, one cannot imagine. Intervention by the League of Nations seems to be called for. It happened at Andover and it happened again at Hendon and there is still no protest from Geneva.

The Red enemy in the form of a Hawker Horsley (Condor) piloted by Flg. Off. E. H. Irving of No. 100 (Bomber) Squadron, took off during the previous event and kept up what seemed to be an innocent patrol over Mill Hill. Then three Bristol Bulldogs (Jupiter) of No. 3 (Fighter) Squadron, piloted by Flt. Lt. J. Oliver, A.F.C., Flg. Off. E. S. Greenwood, and Plt. Off. Lord Malcolm Douglas-Hamilton, took off in close flight formation and climbed above the Horsley, keeping well out of reach of its guns.

The Bulldogs then got behind the Horsley and dived on its tail in line ahead and climbed out of the dive to reform into flight formation. Each Bulldog then attacked the Horsley from below after diving towards it, and turned upward and outwards at the end of the attack. This brought the Fighters above the Horsley again but separated and they attacked simultaneously from different angles. The Horsley seemed to be putting up a very good fight for it turned and twisted in every direction, but without doing anything aerobatic such as twin-engined machines have done in the past.

Only an expert could appreciate the finer details of the combat. In spite of the inequality of the fight it served to show the warlike value of aerobatics, particularly for the quick changing of direction to maintain attack.

The first casualty was one of the Bulldogs which dived at a realistic angle, with clouds of smoke, behind the railway embankment. As though to avenge the insult, the other two Bulldogs despatched the Horsley without further effort and the Horsley went down in the direction of Stag Lane in slow, flat spirals, with two streamers of smoke.

SPOTTING FOR THE GUNS.

Service people are often heard to wonder what happened to all the old R.A.F. Crossley tenders that did such yeoman service during the War. The Artillery Observation event at the Display seems to be the answer. They seem to form an inexhaustible supply of targets for gunnery of that miraculous Hendon kind which is done without guns.

The demonstration at the Display was given by Flt. Lt. C. H. Schofield of No. 4 (Army Co-operation) Squadron, flying an Armstrong Whitworth Atlas (Jaguar). The tale that is told is that the pilot of an artillery observation aircraft observes four lorries of an ammunition column. He attacks them with machine-gun fire and puts one out of action. Presumably pilots are allowed to deduce as well as observe now-a-days, or perhaps he had a staff officer in the back seat. Anyway the three serviceable lorries (1929 type) abandon with indecent haste the disabled lorry (1917 type). With a reckless disregard for the *siesta* of the Gunners and the pockets of the taxpayers the pilot calls for artillery fire to destroy the disabled lorry by giving an exhibition of very high-speed Morse by wireless.

These howls, according to the Programme and supported by those knowledgeable spectators who speak the language, implore the Gunners to waste good shells on what is no longer a good lorry.

The Gunners, rudely awakened, drop several shells some distance from the target. Protesting and indignant wireless wails from the Atlas.

More shells rather near the aircraft park this time. Disappointed and imploring wireless wails from the Atlas. And the Gunners, trying very hard, blow up the lorry.

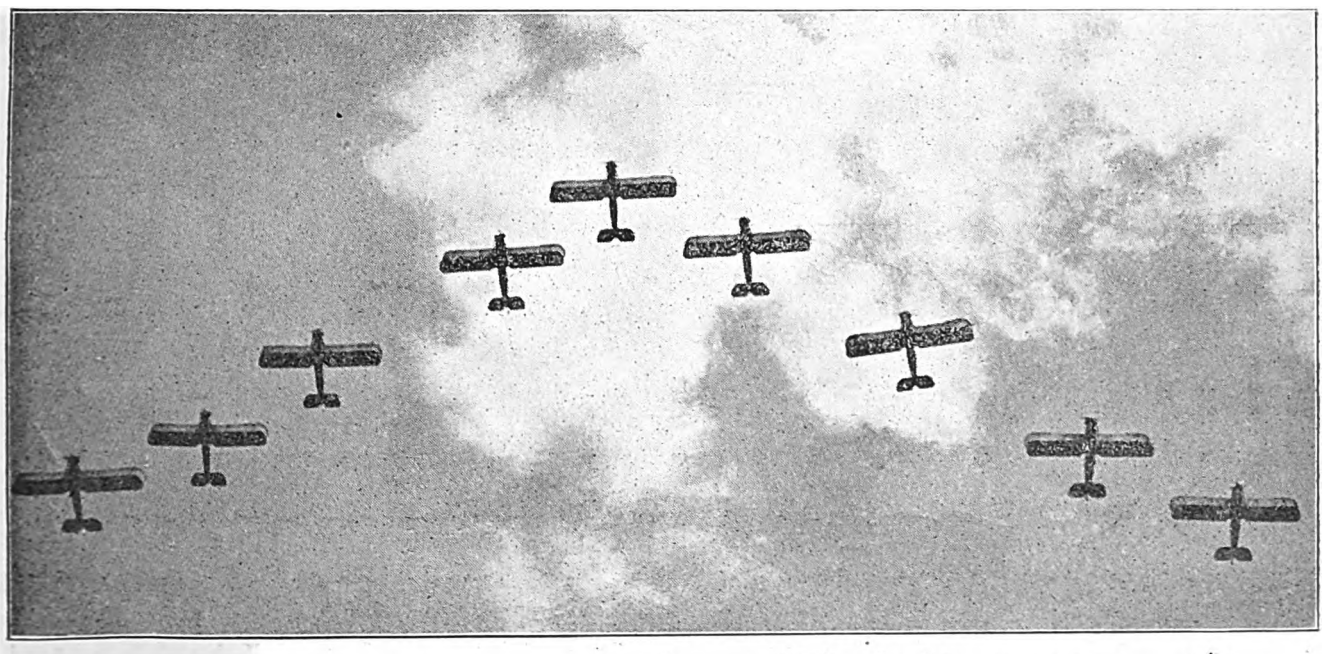
The pilot asks them to stop ploughing up the aerodrome and goes home to his tea, or continues his patrol, according to how you feel about the R.A.F.

Curiously enough the R.A.F. in their own Display maintain the deception that the Air Force bomb habitations but the Gunners only shell such things as discarded lorries.

THE MUSEUM PIECES.

Roars of laughter from the crowd announced that the Experimental Aircraft had been fetched out of their lair and exposed to the public gaze. The Autogiro and the Gugnunc came out under their own power but the Pterodactyl had to be pushed out on a sort of trolley or pram. It seems sad that in their present form the general public cannot take these wonderful examples of the progress of science quite seriously.

The Gugnunc which is the machine which went to America for the Guggenheim Safety Aircraft Competition last year, is not really odd, but the "HANDS OFF" inscriptions painted all over it gave rise to unjustified laughter in



THE WEEK-END WARRIORS.—No. 600 (City of London) (Bomber) Squadron, Auxiliary Air Force, showing the way at the R.A.F. Display.—("*Aeroplane*" *photograph.*)

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the same way that "Patronised by Royalty" on a swing-boat at a fair makes people laugh. And of course the local humorist nicknamed it the "Handley Page Hands-Off,"—in the Handcross, Hanley, Heinz and so-forth series.

However they all flew, and flew astonishingly well and only completed the nightmare by flying round the aerodrome in formation. The Autogyro (Genet Major) was flown by Flt. Lt. A. E. Rogenhagen, the Pterodactyl (Cherub) by Flt. Lt. C. E. Maitland, D.F.C., and the Gugnunc (Lynx) by Flg. Off. H. H. Leech. All three officers are attached to the Royal Aircraft Establishment and, in accordance with King's Regulations and Air Council Instructions, all wore parachutes.

This turn was vastly improved by the accompanying music, which began with "How wonderful you are," went on to "Another little drink wouldn't do us any harm," and ended with "Glory, Glory, Hallelujah!"

The pilot of the Pterodactyl had to wait for a ladder to be brought before he could get down. If overseas squadrons are equipped with these machines they will have to include rope ladders for forced landings in the desert, otherwise the pilots will starve.

Battle Order.

H.R.H. Prince George, the only representative of the Royal Family to attend the Display this year arrived at 15.00 hours, when the afternoon part of the programme was about to begin. One after the other six Squadrons took off. The machines of each Squadron left the ground simultaneously and in perfect Squadron formation, the Fighters leading. They were, in the order named, No. 56 (Fighter) Squadron, Sq. Ldr. A. Lees, A.F.C., No. 29 (Fighter) Squadron, Sq. Ldr. E. J. D. Routh, No. 111 (Fighter) Squadron, Sq. Ldr. L. H. Slatter, O.B.E., D.S.C., D.F.C., all with Armstrong Whitworth Siskins (Jaguar): No. 12 (Bomber) Squadron, Sq. Ldr. F. H. M. Maynard, A.F.C. with Fairey Foxes (Curtiss and Rolls-Royce F.): No. 207 (Bomber) Squadron, Sq. Ldr. E. A. Beaulah, and No. 35 (Bomber) Squadron, Sq. Ldr. B. E. Harrison, A.F.C., both with Fairey III F's. (Lion).

After taking off they disappeared in a westerly direction to await their part of the programme.

The Super-Aerobatics.

The winners of the Fighting Area Aerobatics competition were Flg. Off. J. F. X. McKenna and Flg. Off. D. S. McDougall of No. 23 (Fighter) Squadron. Their machines were Gloster Gamecocks (Jupiter). No. 23 (Fighter) Squadron is the only Squadron left with this machine as its equipment. It is very popular with the pilots and is particularly well adapted for aerobatics. In fact jealous members of other Squadrons have been heard to suggest that the Gamecock's ability to fly on its back without losing height is a distinct factor in favour of its selection for the aerobatics display at Hendon.

Nobody can deny that the two pilots of No. 23 Squadron put up a splendid show. They started from opposite ends of the aerodrome, dived towards each other, passed in the middle and went straight up and into a half-roll. They rolled towards each other, flew side-by-side upside down and half-rolled outwards into position again. It is not possible to remember all their manœuvres, which seemed to cover the whole range of aerobatics, but everyone was impressed by their precision, smoothness of execution and the accuracy of their timing.

There was never a moment when the machines were out of sight or when the spectators had to strain their necks to watch them. In respect of pure showmanship, as in other things, the Display improves every year.

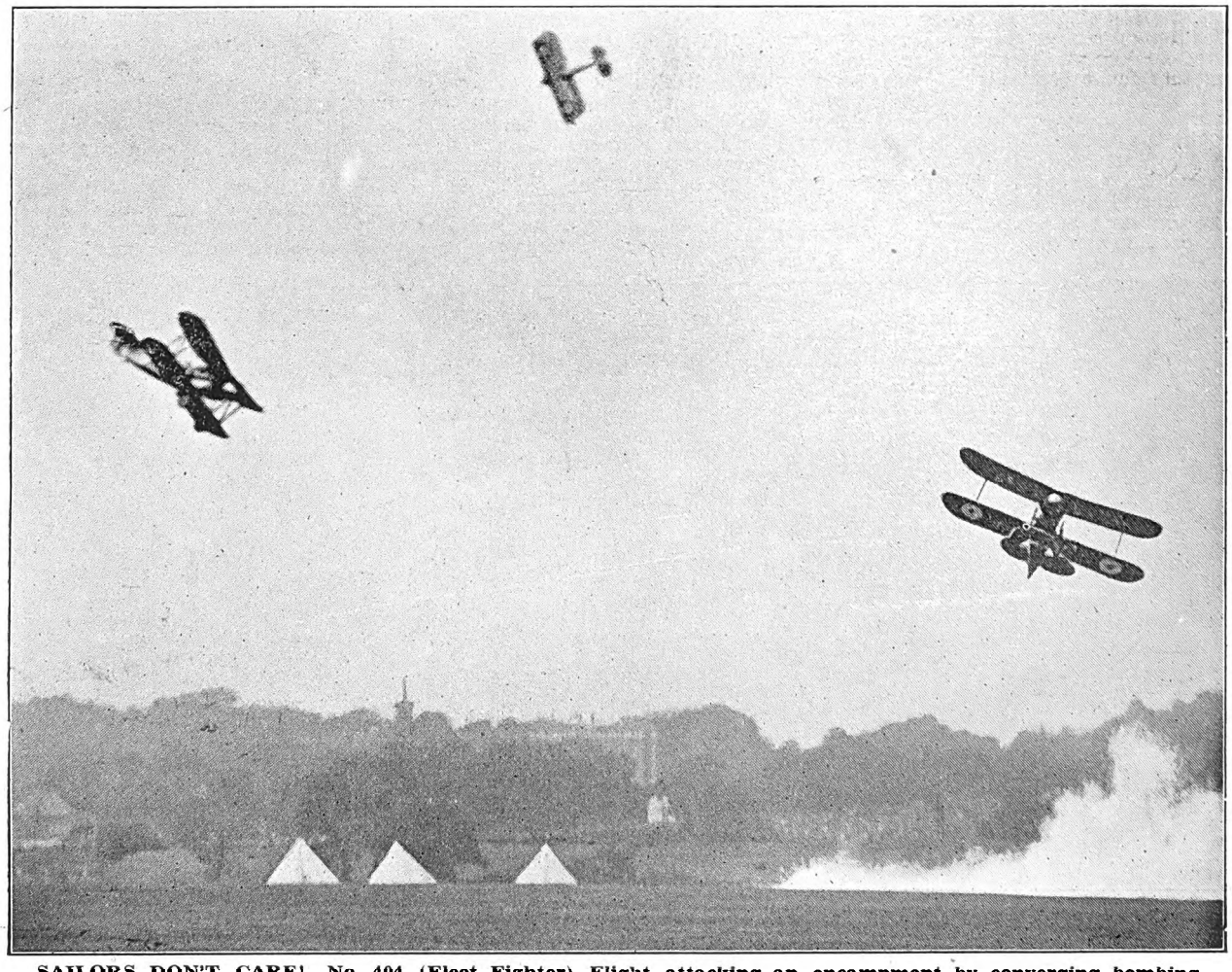
Fleet Fighters.

The problem of giving the Fleet Air Arm a show to themselves in addition to any part they may take in the Set Piece, seems to have been solved this year very successfully. To one of the Fleet Fighter Flights was entrusted what is usually known as the converging bombing attack.

This consists of an attack on a small encampment by Fighters, first with machine-guns and then with bombs. A continuous attack is delivered from changing directions so as to offer the most difficult target to the ground machine-guns.

No. 404 (Fleet Fighter) Flight under the command of Flt. Lt. L. C. Sharman (Lt. Cdr., R.N.) in Fairey Flycatchers (Jaguar) began their spectacular demonstration by diving into the aerodrome in formation and climbing out again with a rush into a Prince-of-Wales feathers. From this they turned and came straight down again onto their target from different directions. Because of its quickness on the turn the Flycatcher is particularly well-adapted to this sort of work, and the close dives and quick get-away combined with the amazing accuracy of the bombing made a war sufficiently terrifying to deter any other Navy from "spitting into our sea."

One was glad to see the reckless generosity with which



SAILORS DON'T CARE!—No. 404 (Fleet Fighter) Flight attacking an encampment by converging bombing and machine-gun fire.—(*"Aeroplane" photograph.*)

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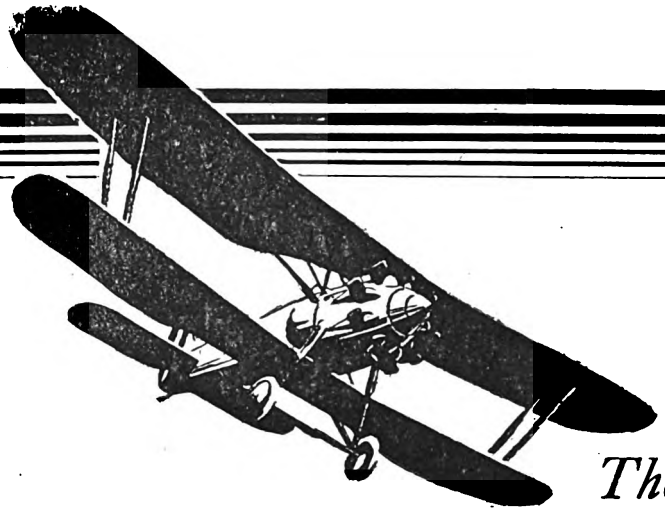

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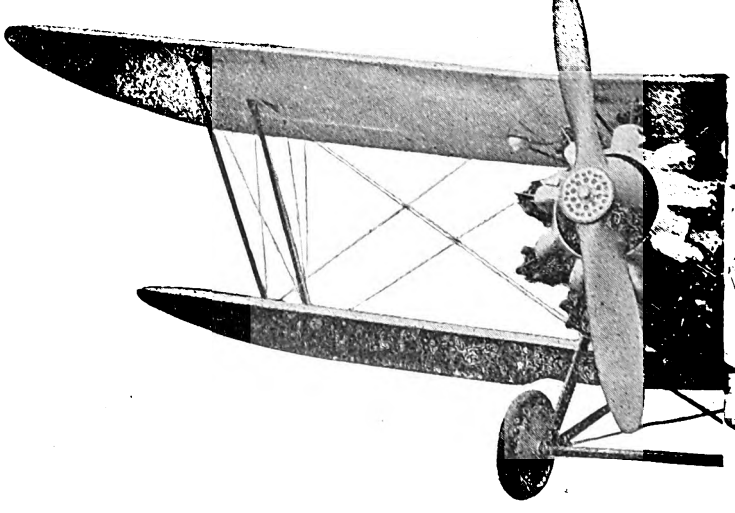

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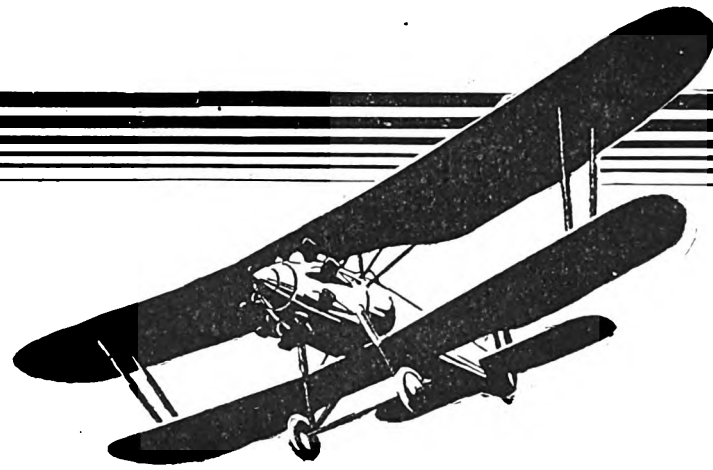

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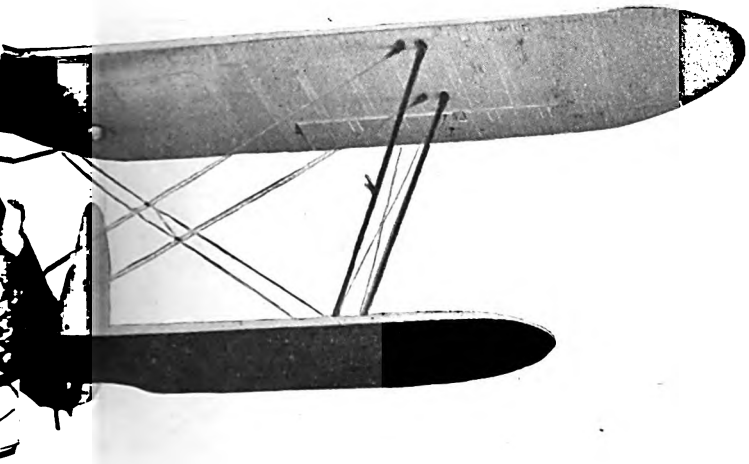

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A PALPABLE HIT.—Flg. Off. G. E. Campbell, D.F.M., and Plt. Off. F. Whittle, of No. 2 Flying Training School, crazy flying on two Avro (Lynx) biplanes.—(*"Aeroplane" photograph.*)

returned without the Fighters and manœuvred in various formations both as Squadrons and as a Wing. They demonstrated the noble art of station-keeping, ending with the most difficult operation of all, that of re-forming into Squadrons after making circles with the whole Wing in line astern.

Lighter than Air.

The Day Bombers were still in the air when the airship R.101 arrived over Hendon. The R.101, which was designed and built at the Royal Airship Works at Cardington, flew over the aerodrome and crowded enclosures with only three of its five engines running, an ungainly monster, but like other ungainly monsters no doubt, the pride and joy of somebody's life.

The C.F.S. Moths.

The demonstration of Flight Aerobatics and Inverted Flying by instructors from the Central Flying School was done again this year on five de Havilland Moths (Gipsy). Next year the C.F.S. will probably do their show on Hawker Tomtits, but these machines were not delivered in time for training this year.

The pilots were Flt. Lt. J. S. Chick, M.C., A.F.C., Flt. Lt. P. R. Barwell, Flg. Off. T. G. Pike, Flg. Off. W. E. P. Johnson, and Plt. Off. T. MacG. Watt. The Moths startled everybody by making their first appearance upside-down. In this position they crossed the aerodrome in "V" formation. They turned over and then looped in formation. They then changed formation into line ahead and, starting with the leader, half-rolled into the inverted position in turn.

In this position they flew two complete circles in line followed by a figure of eight. By this time one could not help feeling that it would have been more merciful to have had this event before lunch.

They turned over again and did another loop in formation after which they crossed the aerodrome with the leader of the formation inverted and the rest normal. The leader's signal to the rest when he was about to half-roll back could be seen quite plainly from the ground.

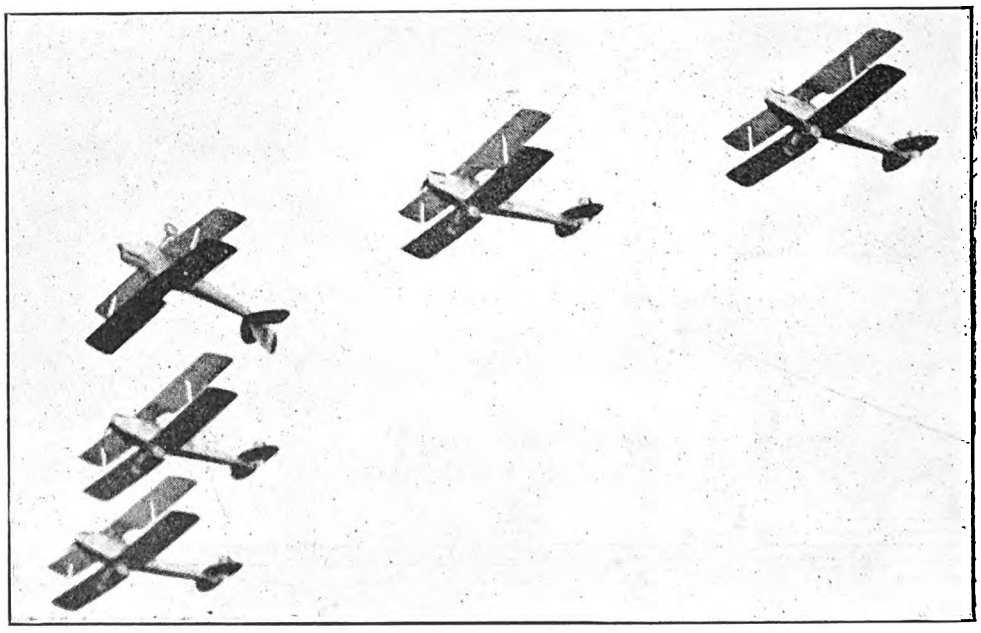
The Caterpillar School.

Six pull-off descents from two Vickers Vimys (2 Jupiters) by members of the Parachute Section of the Home Aircraft Depot was apparently one of the most popular events in the Programme. The stiff breeze blowing made the expert control of the parachutes extremely interesting to watch. At least one man would have landed in the Royal enclosure if he had not made good use of the navigational properties of wind-spilling.

Smoke Without Fire.

Another very popular event was the aerobatics with smoke. Three Gloster Grebes (Jaguar) of the Armament and Aeroplane Experimental Establishment, piloted by Flt. Lt. D. M. Fleming, Flt. Lt. C. B. Wincott and Flt. Lt. J. R. Addams rushed round the sky, one with white smoke and two with orange smoke, and as they did intricate aerobatics, left streams of smoke showing the path of their flight.

One movement left rings of smoke threaded through each other like a chain. Another made a huge orange needle



THE INVERTED LEADER.—The Central Flying School Flight of D.H. Moths (Gipsy) being led round the aerodrome by Flt. Lt. J. S. Chick, M.C., A.F.C., whose machine is upside-down.
—(*"Aeroplane" photograph.*)

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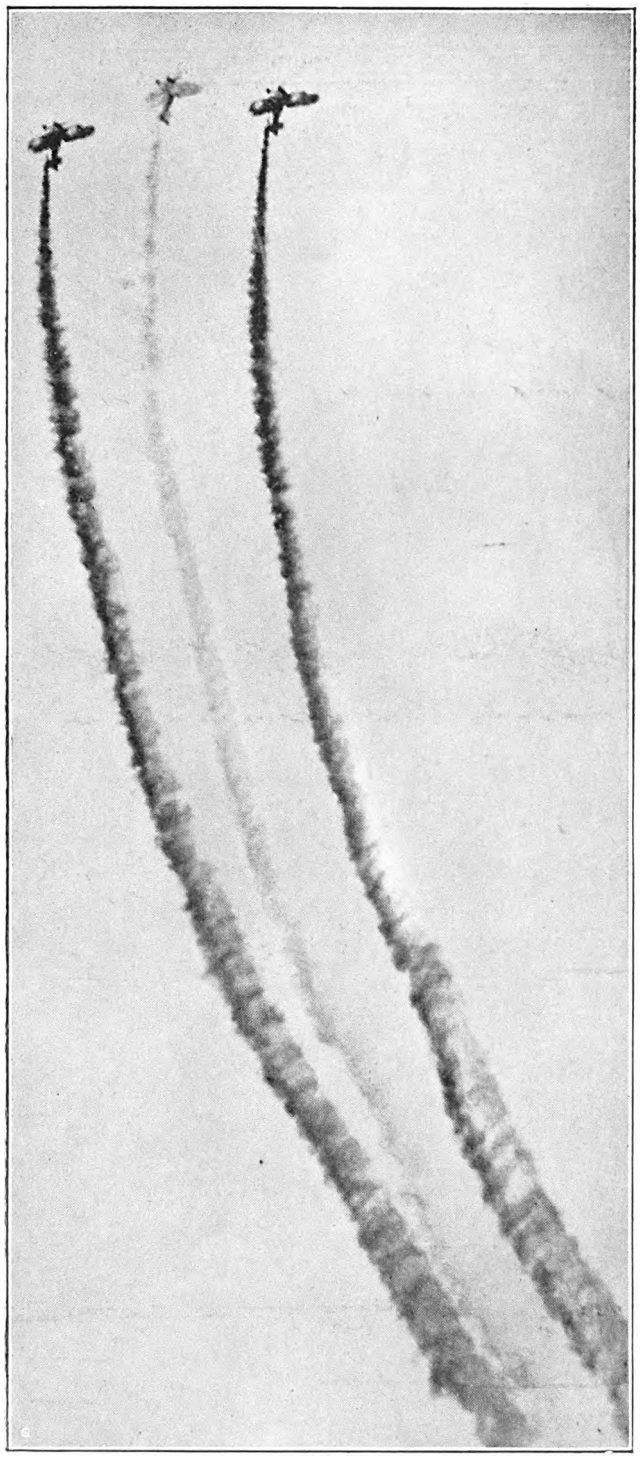


GOING UP IN SMOKE.—The three Gloster Grebes (Jaguar) of the Armament and Aeroplane Experimental Establishment "trailing clouds of glory."
—("*Aeroplane*" *photograph.*)

threaded with a white thread. A huge circle with three parallel streams of smoke was effective and made by the machines flying in line but above each other. The final movement was the forming of the Prince of Wales' feathers.

THE CLOWNS.

The crazy-flying by Flg. Off. G. E. Campbell, D.F.M., and Plt. Off. F. F. Whittle on Standard Training Avros (Lynx) was up to the usual standard of irresistible humour. These two officers, representing No. 2 Flying Training School, are the winners of a competition open to Flying Training Schools at home. The performance was made even more hilarious than in previous years by the introduction of strange noises, produced mechanically in the machines, one of which twittered loudly while the other moaned dolefully. These were heard with some difficulty above the strange noises indicative of mirth made by the spectators.

A SQUADRON IN HANDCUFFS.

The only absolutely new and original event in this year's Display was the Squadron Aerobatics by No. 43 (Fighter) Squadron, commanded by Sq. Ldr. C. N. Lowe, M.C., D.F.C. The Squadron, in Armstrong Whitworth Siskins (Jaguar), took off, flew in formation and did aerobatics with the three machines of each Flight tied together with rubber cords to which were attached a row of little flags.

[The novelty lay in having three formations linked by rubber cords, instead of having one formation linked by ribbons, as the U.S. Army Service had at Dayton, O., in October 1924.—C. G. G.]

After manœuvring as a Squadron they looped as a Squadron and then did a succession of loops in flights ahead in line astern. They then looped and deliberately snapped the cords at the top of the loop. It would have been a very skilful and effective display even without the cords.

[With this one cordially agrees. The team work and the handling of the machines were quite perfect.—C. G. G.]

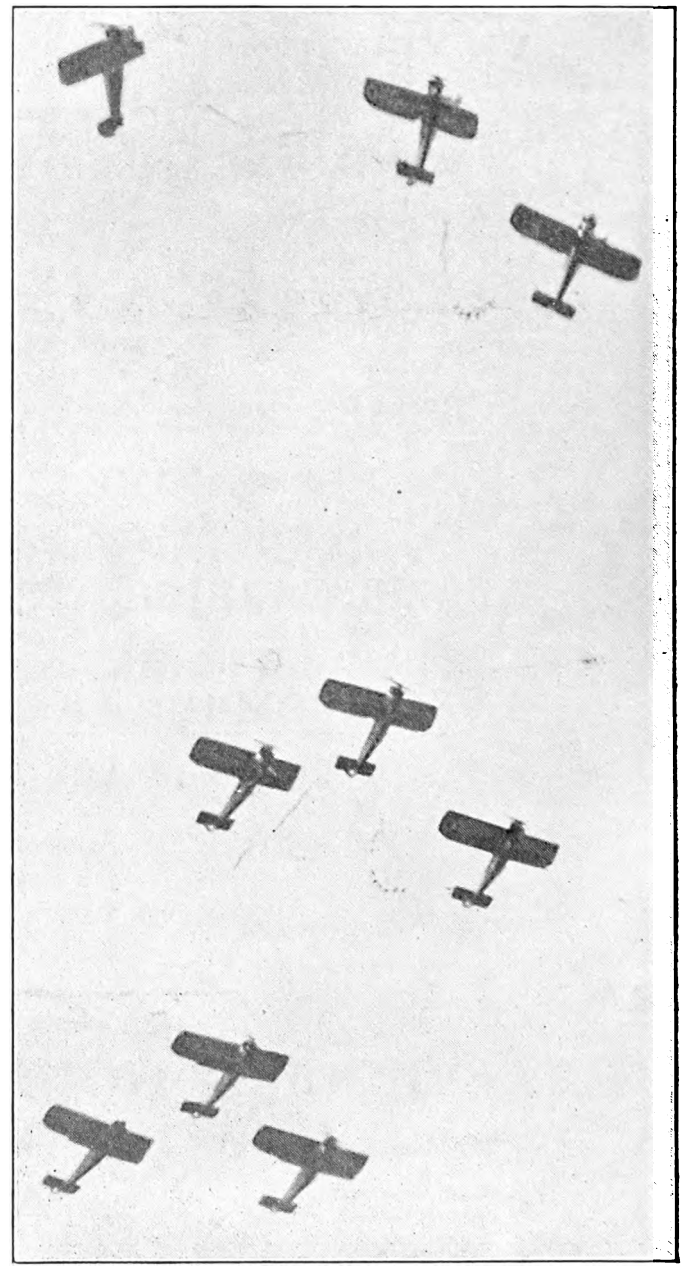
NEW AND NOT SO NEW.

The new and experimental types which are described elsewhere, then taxied past the enclosures, took off and flew past, round, and past again.

THE KITE BALLOON LOSES AGAIN.

Squadron Leader Sandbags, who has earned a bar to his O.B.E., in successive Displays, lost seniority, precedence and access to the bars for abandoning his Kite-Balloon some minutes before it was in any danger.

The Kite-Balloon was protected by two Fighters when it was attacked by three other Fighters (Fighters on both sides, Armstrong Whitworth Siskins (Jaguar) of No. 41



TAKING THE STRAIN.—No. 43 (Fighter) Squadron linked together with rubber cords. The flight at the top is just breaking away.—("*Aeroplane*" *photograph.*)

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Capt. Barnard (left) and his mechanic Mr. Little (right) with the Duchess of Bedford's record-breaking airplane "Spider."

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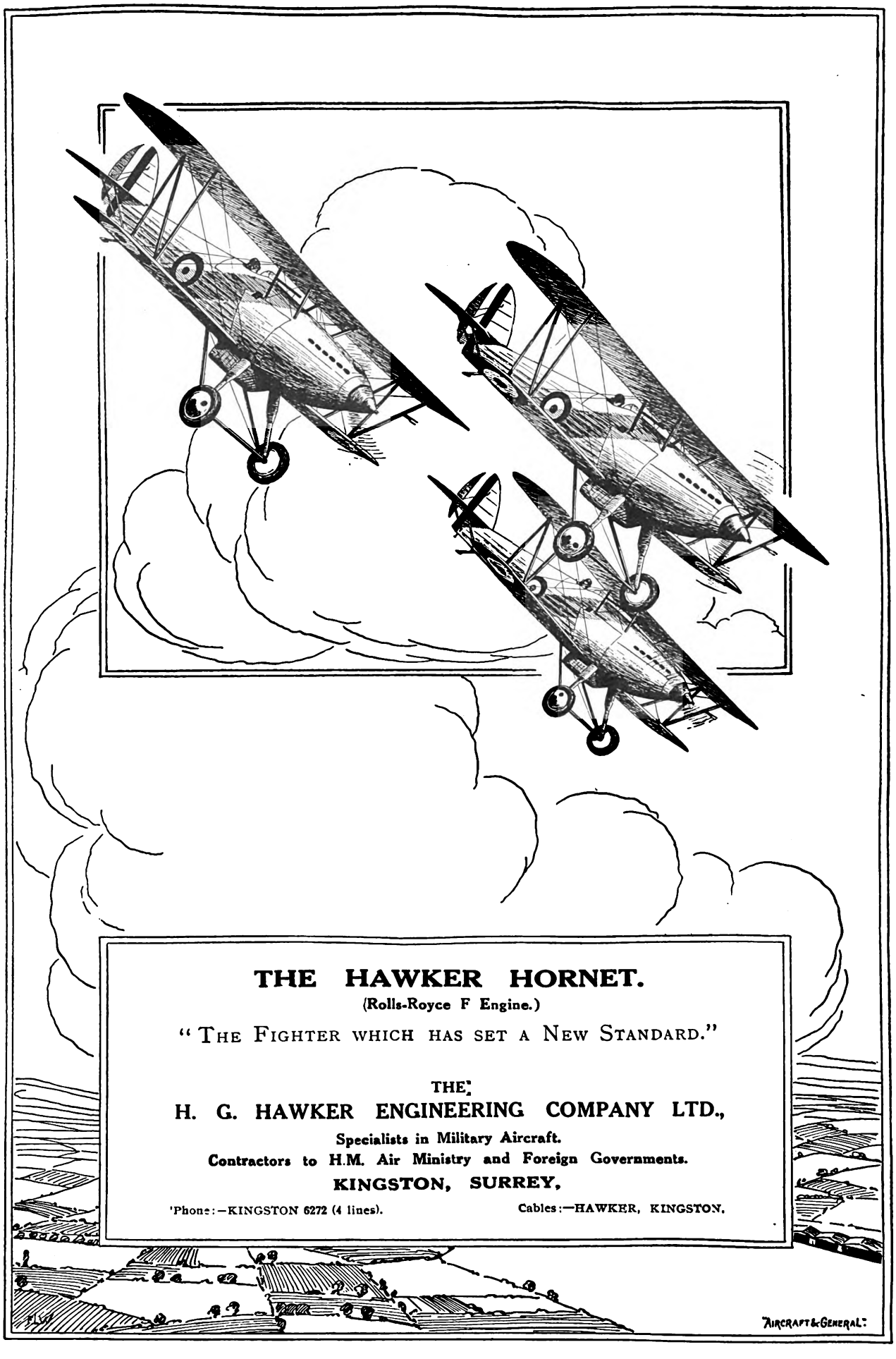

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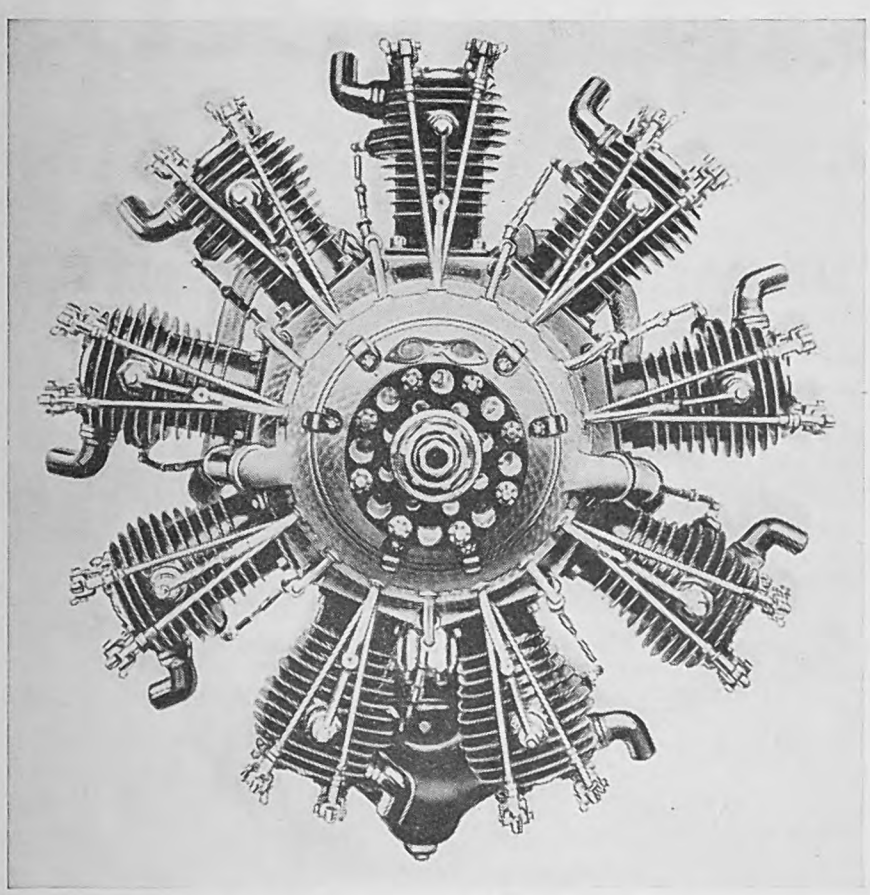

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THE AMUSEMENT PARK.

IN THE PARADE.—The Armstrong Whitworth Siskin III.B (Armstrong Siddeley Jaguar VIII geared and supercharged engine with Townend ring cowling) and on the left the Blackburn Lincock (Armstrong Siddeley Lynx IV engine).—(*"Aeroplane" photograph.*)

This year, the New Type Park, or "Amusement Park" as it was facetiously nick-named at the time of the British Empire Exhibition at Wembley in 1923, was re-instated to its place in the programme after a lapse of two years.

To a very large proportion of the visitors this is one of the most interesting features of the Display and it seems a pity that it is not made more comprehensive. Its present name leads one to expect the presence of a number of aircraft hot off the Secret List, but actually only about one half of the sixteen aircraft present had not been seen in public before, and of the total a third were bearing civil aircraft markings and were not primarily R.A.F. aircraft at all.

In a display which is so thoroughly R.A.F. the presence of civil aircraft creates a jarring note. One cannot conceive a Naval Review being augmented by the *Golden Eagle*, the *Clacton Belle*, a Liverpool ferry and a Thames tug, or a Military Review by a few platoons of the British Legion, the Corps of Commissionaires and the Salvation Army with the blank files filled with Kinema attendants. In the same way it is hard to become reconciled to the sight of the sleek and beautiful D.H.77 Interceptor fighter of prodigious performance standing alongside the equally beautiful but impertinent looking little D.H.80 or Puss-Moth at anything other than a trade exhibition.

A Suggestion.

One suggests in all humility that in future only definitely R.A.F. military type of aircraft should be exhibited. The nucleus may be made up of the latest types of Service aircraft, including the more interesting ones actually taking part in the Display, and padded out with a fair proportion of new and experimental types.

They should be grouped according to classes, *i.e.* Training, Fighting, Bombing etc., and most of the classes should be represented. Explanatory notice-boards, augmented by fuller information in the programme, should outline the requirements of the classes and the qualifications of the exhibits so that the ignorant taxpayer might become acquainted with the functions and equipment of the latest Arm of the Services of which he is still so painfully ignorant.

To this end there is no reason why a few standard service types of aircraft should not be pegged out in or near the 5s. and 2s. enclosures.

The said taxpayer's source of information is very limited and if he relies on the ramblings of the Air Correspondents of the various syndicated news-sheets he is more likely to be led astray than to be attracted towards the path of learning.

An example of the "educational" value of one of these journals was supplied by a Sunday newspaper which considered the happy ending of the love affair of a certain person, who, while he was a serving officer in the R.A.F. "temporarily forgot service regulations" and flew a Bristol Fighter to a seaside resort to amuse a girl friend and crashed into a flag-pole, as front-page "meat," while the description of the R.A.F. Display was relegated to an insignificant corner of an inside page although it must have been seen by thousands of its certified readers.

To the Trade.

Returning to the question of civil aircraft, if the Trade wants its machines to be seen by the public it should fly them to the more important Civil flying meetings and peg them out near the railings, or alternatively the organisers of the meetings might provide an enclosure and charge a nominal sum to people who wished to circumnavigate the pen wherein the aircraft might be enclosed, with a few well-spoken guides.

The Trade need not suffer by the exclusion of its civil

THE AMUSEMENT PARK.—The mixture of aircraft bearing civil and service markings in the New Aircraft Park. Nearest the camera are the Puss-Moth (G-AAXJ), the Gugnunc (G-AACN), and the Cutty Sark. On the right are the Gloster VI and the Supermarine S.6. In the middle is the new Vickers night bomber.
—(*"Aeroplane" photograph.*)

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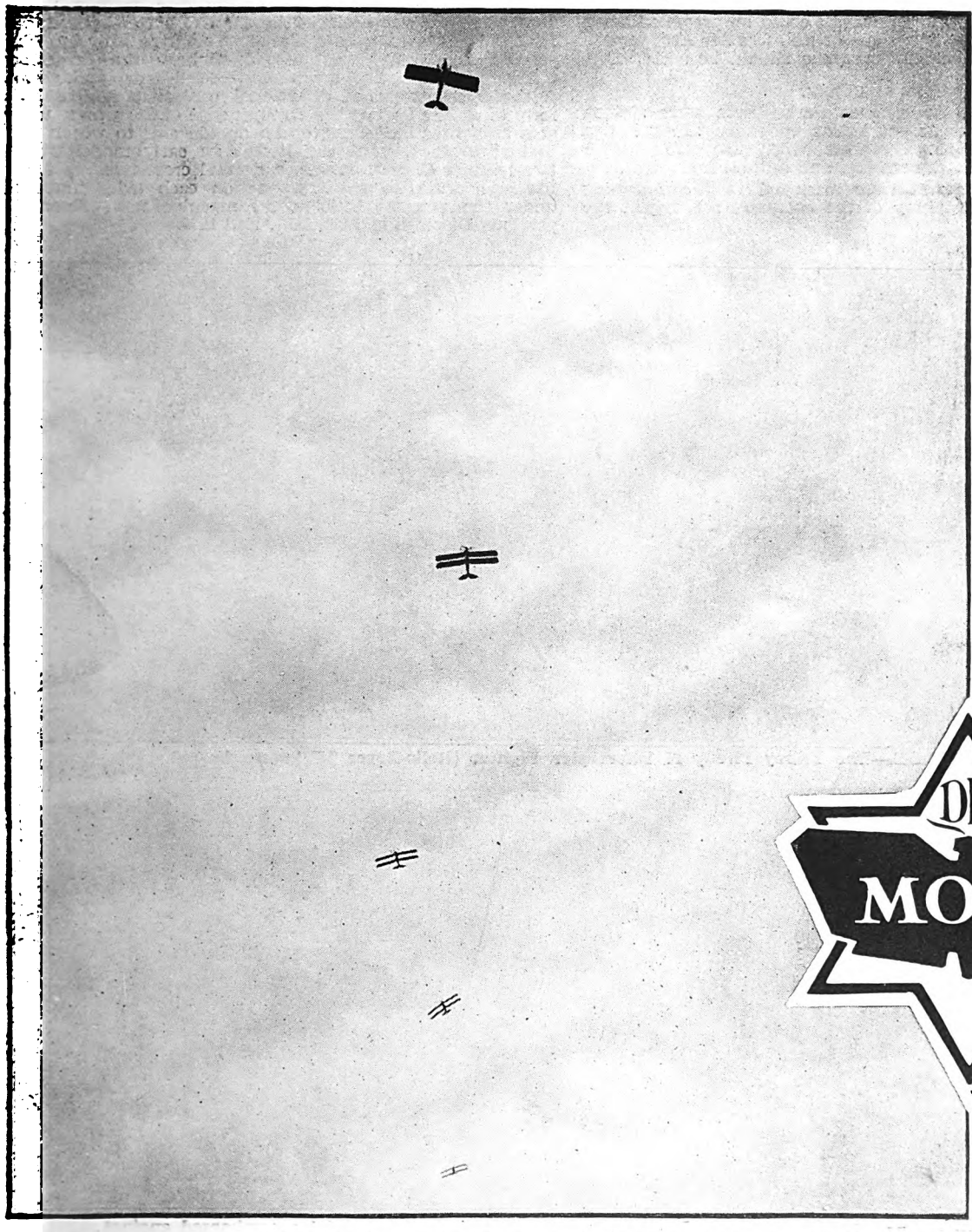

The photograph was taken almost vertically upwards when the five Gipsy Moths were flying "inverted" in line.

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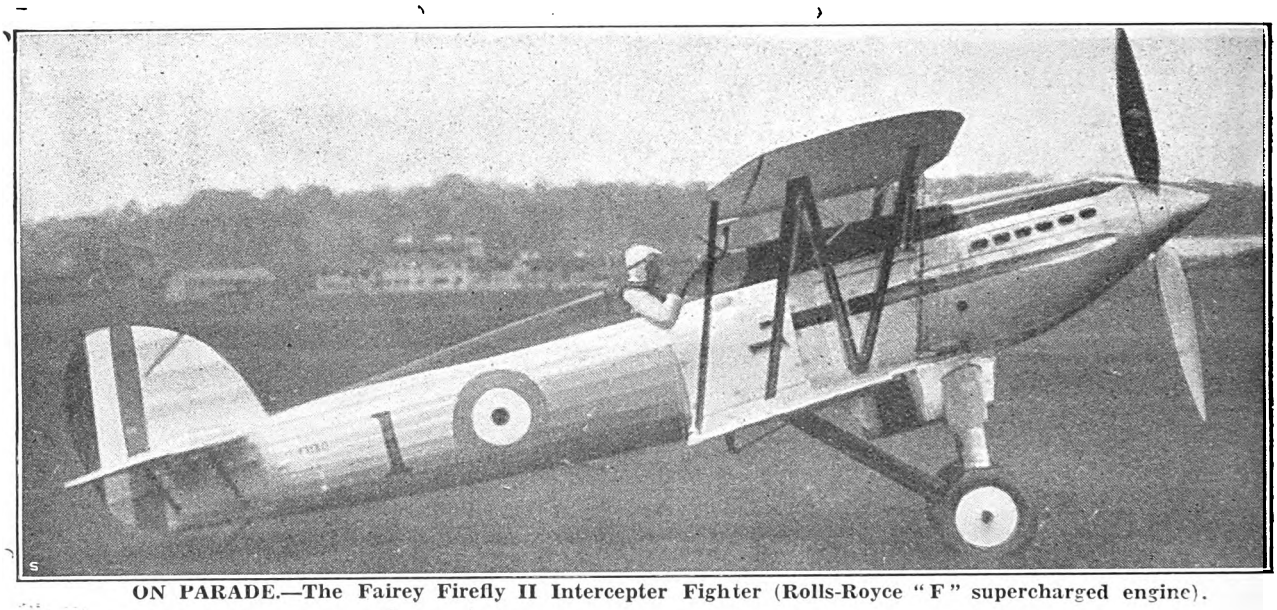
types, as most of the existing firms have produced military types. And if only the Admiralty could be prevailed upon to release for a few days some of its Fleet Air Arm experimental aircraft practically everyone should be satisfied.

In the Park.

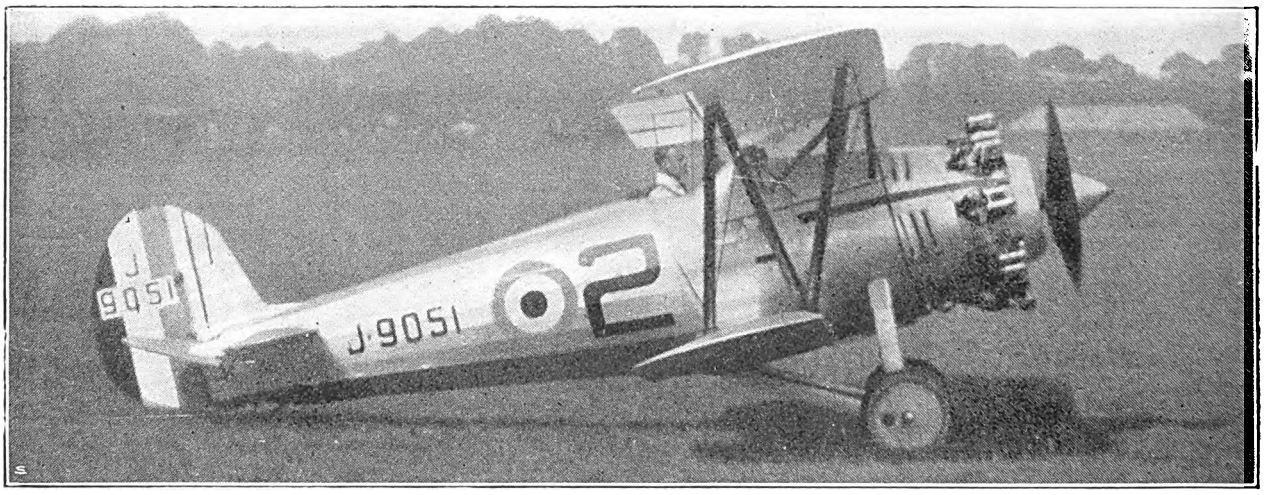
To revert to the Amusement Park, there were sixteen aircraft arranged round a circular enclosure which had a double row of fencing between which the public were allowed to circulate, camera-less and anti-clockwise-like.

These sixteen aircraft were arranged in the following order round the periphery of the enclosure starting at the entrance:—

The Pterodactyl.—This aeroplane is a tailless pusher monoplane and was designed by Capt. G. T. R. Hill and built by the Westland Aircraft Works. This type was described as the Mk.IB and was alleged to have the Armstrong Siddeley Genet engine, a tandem-wheeled undercarriage and a modified system of directional control provided by a form of double flap at the trailing edge of the wings, which acts as a drag-increasing organ on the side to which it is desired to turn. Actually it was an early model with a two-cylinder Cherub engine, a normal cross-axle vee undercarriage and two rudders, one on each side, mounted under the wings. This actual machine was present at previous Displays in 1926, 1927, and 1928.



ON PARADE.—The Fairey Firefly II Intercepter Fighter (Rolls-Royce "F" supercharged engine).



ON PARADE.—The Bristol Bull-pup Intercepter Fighter (Bristol Jupiter VII supercharged engine).

ON PARADE.—The Hawker Hart two-seat Day Bomber (Rolls-Royce "F" engine). The engine in this machine is fitted experimentally with steam cooling. The condenser unit along the leading-edge of the top plane and the header tank are visible.—(*"Aeroplane" photographs.*)

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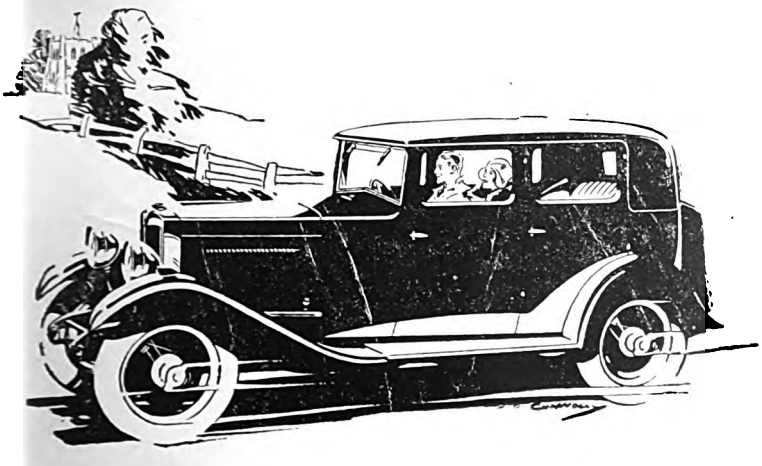
The M.G. Slogan



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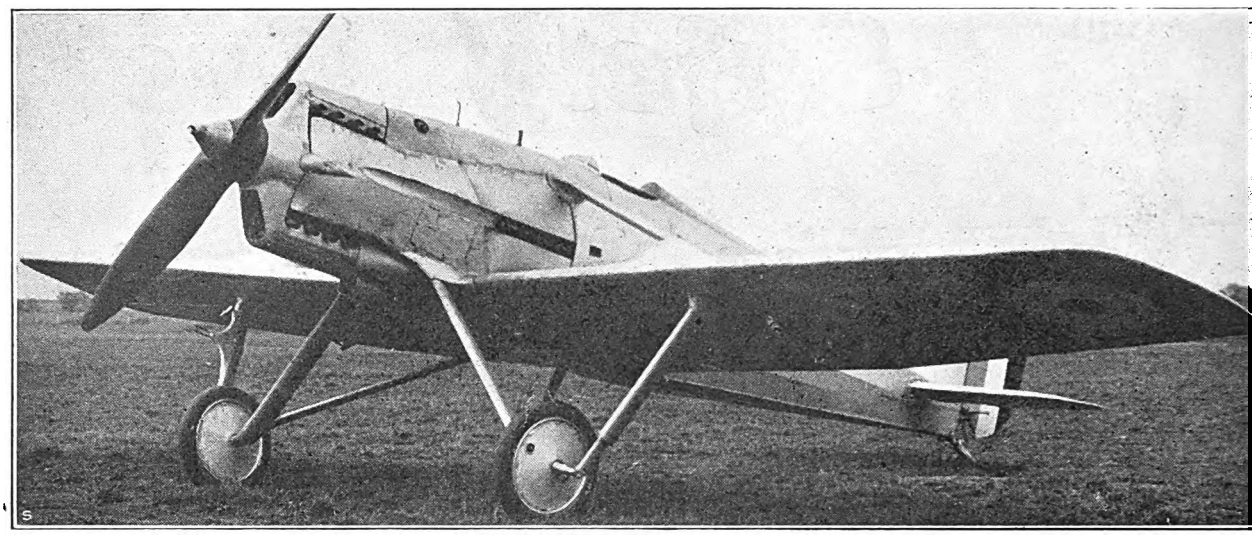


AN INTERCEPTER.—The D.H.77 single-seat Intercepter Fighter Monoplane which has been built round the new 300 h.p. Napier-Halford "H" sixteen-cylinder air-cooled engine.—(*"Aeroplane" photograph.*)

THE AUTOGIRO.—The Autogiro type C.19 is the latest type produced by the Cierva Autogiro Co. Ltd. It embodies the self-starting box-tail which was first seen in public at the Aero Show at Olympia last year. This machine demonstrated the efficacy of this device before it literally leapt into the air in its formation demonstration with the Pterodactyl and the Gugnunc, and when allowed to it showed a good turn of speed.

THE HAWKER HART.—The Hart is the latest type of day bomber to go into service in the R.A.F. but the specimen shown in the Park was an experimental model fitted with steam-cooling for its Rolls-Royce "F" engine. In this machine the circulating cooling water is allowed to reach boiling-point in the engine cylinder jackets and the resultant steam is condensed in tanks formed in the leading edges of the wings after which the water is returned to a small header-tank ready for use again.

The weight of the condenser plant is approximately that of the normal radiator system but the quantity of water carried is reduced. The normal radiator is dispensed with, which reduces head resistance, there is a saving in weight of water carried, and there is less risk of water loss should the cooling system be damaged by bullets in action. For experimental purposes the Hart exhibited was fitted with a normal radiator in addition to the steam condensers.

THE D.H.77:—This machine is an Intercepter fighter of exceedingly clean design and high performance. The Intercepter Fighter class has been evolved to engage possible enemy high-speed day-bombers with a theoretical performance of roughly 150 m.p.h. at 20,000 ft. The interceptor is therefore required to reach this height in the shortest time possible and to have a pursuing speed vastly superior to that of the enemy, the warning of whose arrival over London can only be of the shortest.

The D.H.77 has been built round the new Napier-Halford "H" air-cooled engine. This engine presents an unusually small frontal area, and the De Havilland firm, from their research with the record-breaking Tiger Moth in streamlining and cooling and cowling of air-cooled engines, have produced a machine in which cleanliness comes as near to Godliness as is possible in a military aircraft which must carry such accessories as machine guns, Aldis sights etc.

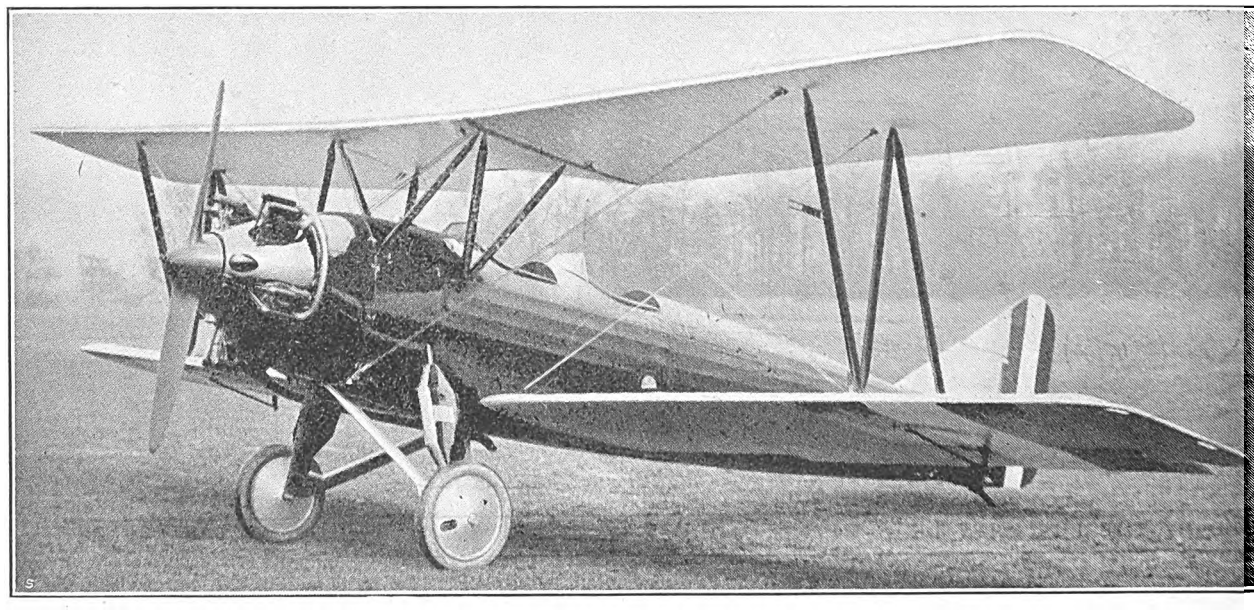
The D.H.77 has a maximum speed of 203 m.p.h. at 20,000 ft., a landing speed of 60 m.p.h., and has an all-up weight of 2,300 lbs.

THE BLACKBURN LINCOCK.—The Lincock is a light single-seat fighter biplane with the Armstrong Siddeley Lynx engine. The machine shown was the original wooden model which has been seen at a number of civil flying meetings for some two years. The latest all-metal version is a distinct improvement on the old type both in appearance and performance. Unfortunately it was damaged a week before the Display, but the machine shown flew in a way which demonstrated the excellent capabilities of the type as an advanced training machine or a light economical fighter.

THE D.H. PUSS MOTH.—The Puss Moth is the latest member of the D.H. Moth series and this machine has been illustrated and described fully in THE AEROPLANE recently.

THE SAUNDERS-ROE CUTTY SARK.—The Cutty Sark is a small four-seat twin-engined flying-boat amphibian intended for civil use, for the private owner or possibly for flying-boat training. This machine has also been amply illustrated and described in THE AEROPLANE.

THE HANDLEY PAGE GUGNUNC.—The Gugnunc was built by Handley Page Ltd. to compete in the 1929 Guggenheim Safety Aircraft Competition in the U.S.A. It embodies a very complete equipment of slots and flaps and with their



FOR TRAINING.—The Avro Trainer two-seat biplane (150 h.p. Armstrong Siddeley Mongoose engine) which has been designed to supersede the famous old type 504 of the same makers.—(*"Aeroplane" photograph.*)

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Miss Amy Johnson's

remarkable

LONE FLIGHT

TO AUSTRALIA

Following the Duchess of Bedford's record flight to Capetown and back, Miss Amy Johnson, the 26-year-old lady pilot, has flown her Gypsy Moth single-handed from Croydon to Australia in 20 days. During her journey Miss Johnson beat the existing record for a solo flight to India by reaching that country in 6 days.

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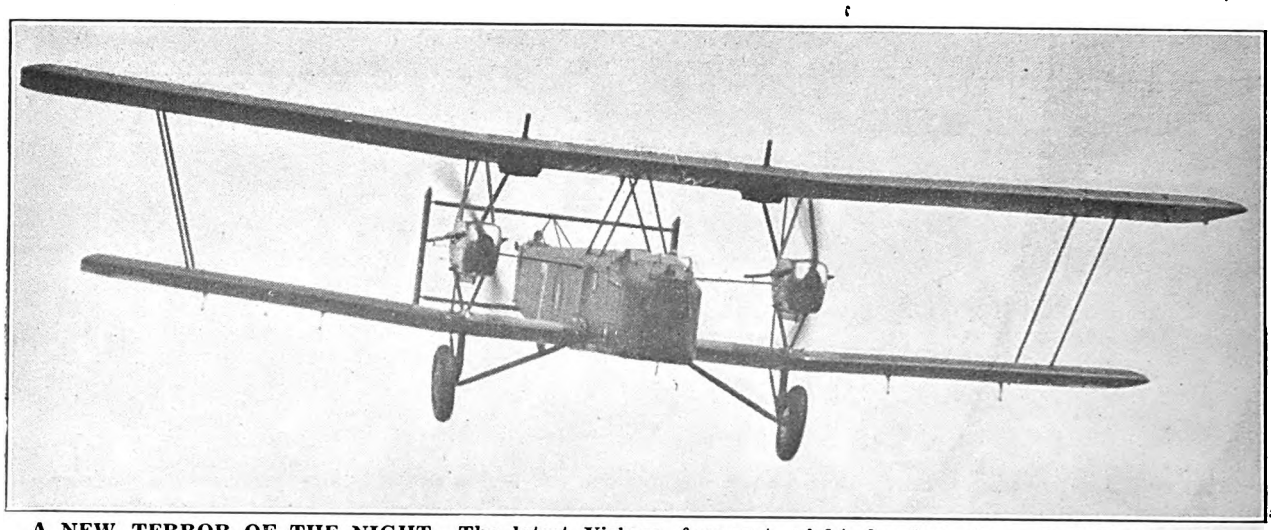


A NEW TERROR OF THE NIGHT.—The latest Vickers four-seat night bomber (two Rolls-Royce "F" engines). The only visible member of the crew is the gunner in the tail aft of the tail unit.
—("Aeroplane" photograph.)

aid the pilot is in a position to defy all laws except that of Gravity with complete impartiality. The bottom wing flaps on each side were inscribed in large letters "HANDS OFF"—a very much more suitable name for the machine than the Gugnunc, in spite of its slightly Tartar sound.

THE GLOSTER VI.—The Gloster VI was built to compete in the 1929 Schneider Trophy Contest but was unfortunately unable to take part. It is without question one of the most beautiful racing aeroplanes in the World and provides a fitting monument to the Gloster Company's courageous racing policy, which has now regrettably been abandoned. The Gloster VI and the Napier engine have been modified and there is every possibility that this combination may yet put up a performance to beat the World's Record.

THE SUPERMARINE S6.—This type holds the World's Speed Record at 357.7 m.p.h. and was also the winner of the 1929 Schneider Trophy Contest—two of the most coveted achievements in the World of Aviation. The S.6 and its Rolls-Royce "R" engine are the embodiment of *pur sang*—there can be little to say beyond that.

THE ARMSTRONG WHITWORTH SISKIN IIIB.—The Siskin IIIB is the latest development of the Siskin III which forms the largest proportion of the single-seat fighter equipment of the R.A.F. Unlike the Interceptor class, the standard Fighter class calls for day and night flying equipment. The IIIB has a geared and supercharged Jaguar VIII engine and Townend ring cowling but in external appearance it differs little from the standard type. It has a maximum speed of 164 m.p.h. at 15,000 ft. a landing speed of 63 m.p.h. and has an all-up weight of 3,375 lbs.

THE WESTLAND WAPITI.—The Wapiti is one of the standard General Purpose types in the R.A.F. but the machine shown was a modification of this type arranged for Army Co-operation duties in India. This modification largely concerns equipment and is not visible externally.

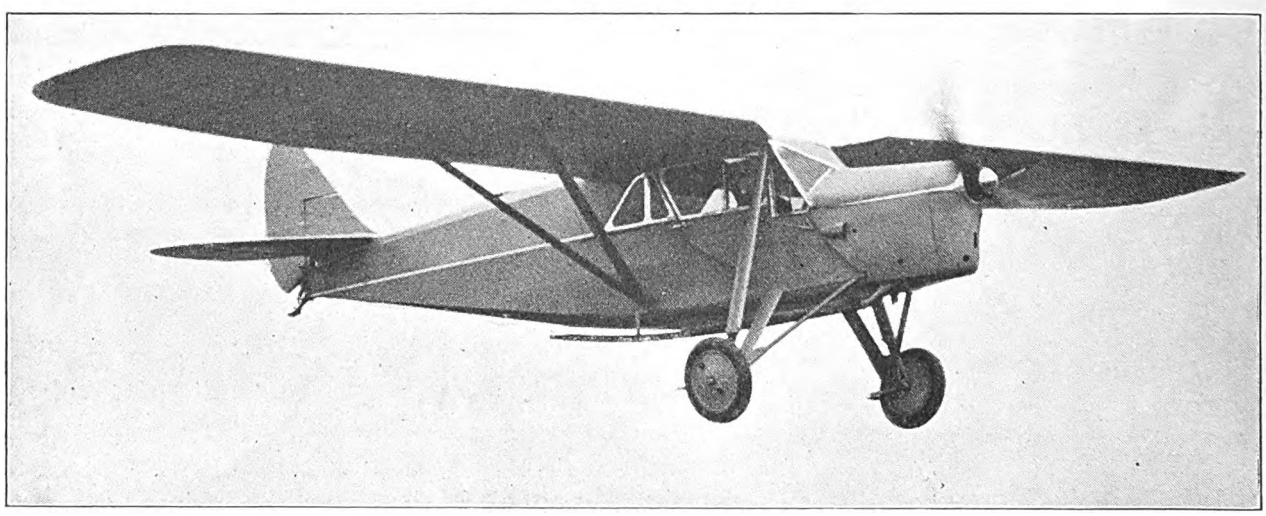
Actually the machine shown had a new type undercarriage which comprised two rigid vees, to the apices of which were hinged radius rods running to the bottom ends of the oleo-legs. The tail incorporated a steerable wheel of the Goodyear Air-wheel type. With a Jupiter VIII engine the Wapiti has a top speed of 135 m.p.h. at 10,000 ft., a landing speed of 58 m.p.h., and has an all-up weight of 4,860 lbs.

THE BRISTOL BULL-PUP.—The Bull-pup belongs to the Intercepter class and is a smaller and lighter version of the well-known Bulldog, which it closely resembles. With the Jupiter VII supercharged engine the Bull-pup has a maximum speed of 175 m.p.h. at 20,000 ft., a landing speed of 67 m.p.h. and has an all-up weight of 3,100 lbs.

THE AVRO TRAINER.—The Avro Trainer is a new medium-weight primary biplane and belongs to a class which is intended to supersede the old Avro 504N. It is of all-metal construction and has the 150 h.p. Armstrong Siddeley Mongoose engine. It has been described and illustrated in an earlier issue of THE AEROPLANE.

THE FAIREY FIREFLY II.—The Firefly belongs to the Interceptor class and is a worthy descendant of the line of Fairey high-speed service aircraft which began with the Fox. The Firefly I was exhibited at the Aero Show last year but the Mk. II version differs from that model in many respects. The radiator is now fixed under the fuselage (instead of being retractable and interconnected with a wing radiator in the centre-section), the shape of the tail has been altered, the pilot's seat has been raised to give a better view forward and the undercarriage has been heightened. It is now built all of metal. The Firefly has a maximum speed of 197 m.p.h. at 20,000 ft., a landing speed of 70 m.p.h., and has an all-up weight of 3,259 lbs.

THE VICKERS NIGHT BOMBER.—This machine by virtue of its size held pride of place in the middle of the enclosure. It has been designed to replace the Vickers Virginia bomber and is a very remarkable contribution to the night-bomber class. It is a single-bay biplane with two Rolls-Royce F.XIV engines between the wings, one on either side of the fuselage. The biplane tail is remarkable for its small size and the fact that it has no fixed surfaces. The whole tail-surface acts as elevator, and it is located in advance of the extreme end of the fuselage wherein is located the aft gunner's cockpit. This machine has a maximum speed of 137 m.p.h., at 10,000 ft., a landing speed of 55 m.p.h. and has an all-up weight of 15,620 lbs.



THE PUSS-MOTH.—The latest D.H. light aeroplane which took part in the fly-past of new aircraft.
—("Aeroplane" photograph.)

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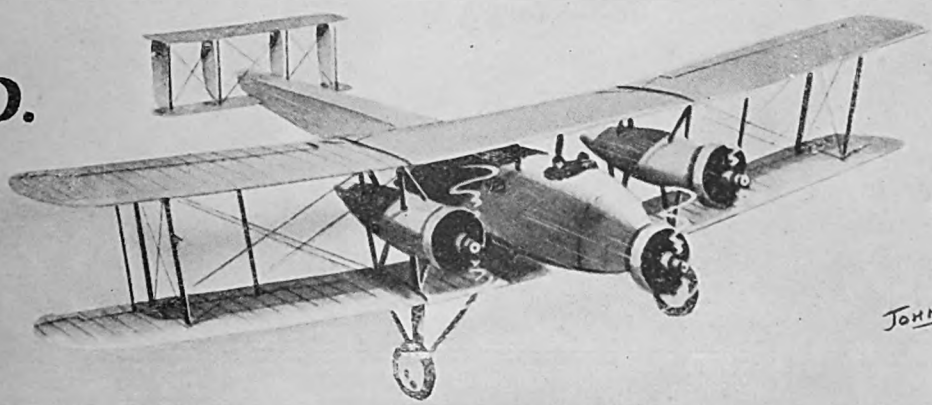

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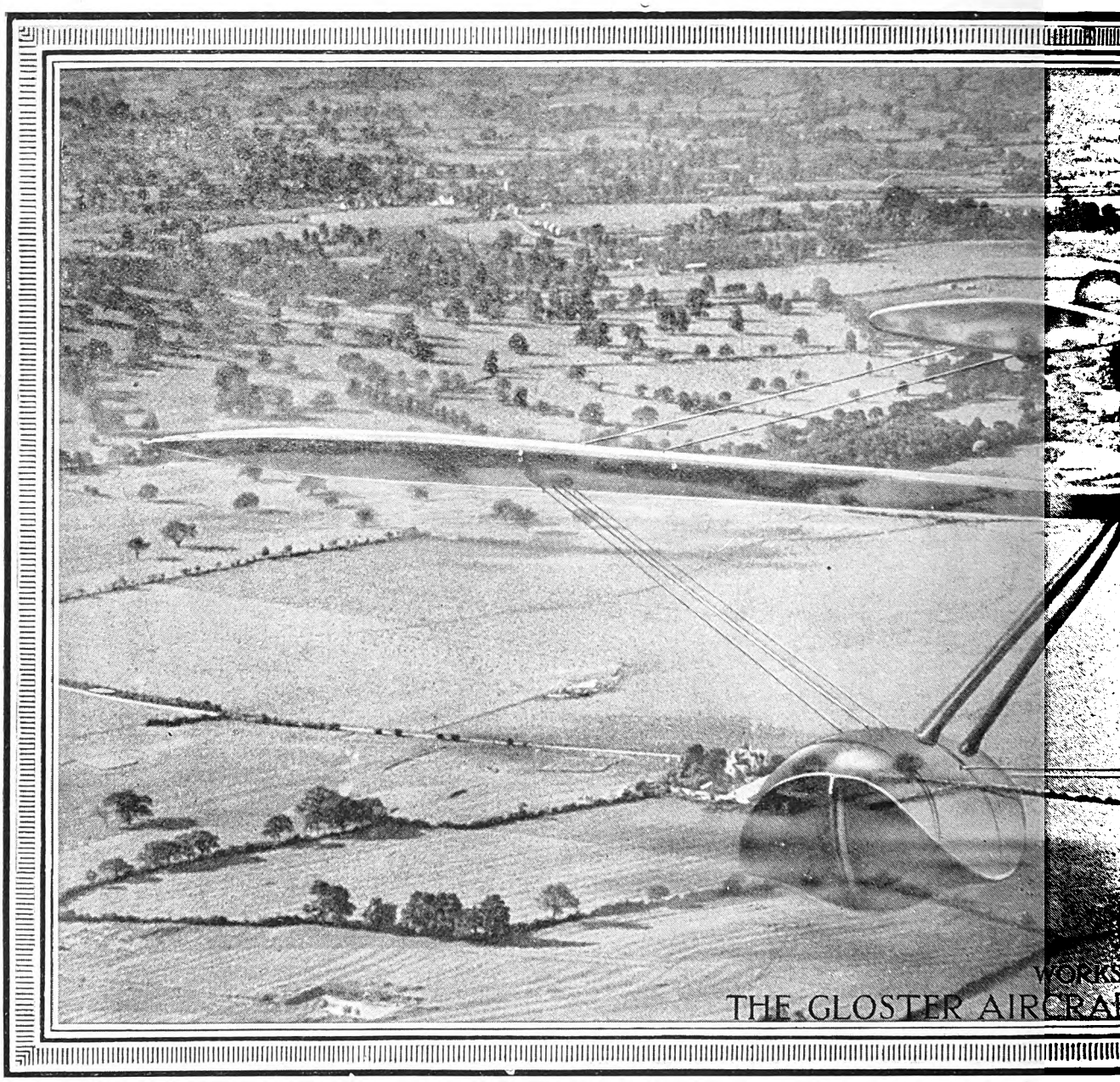

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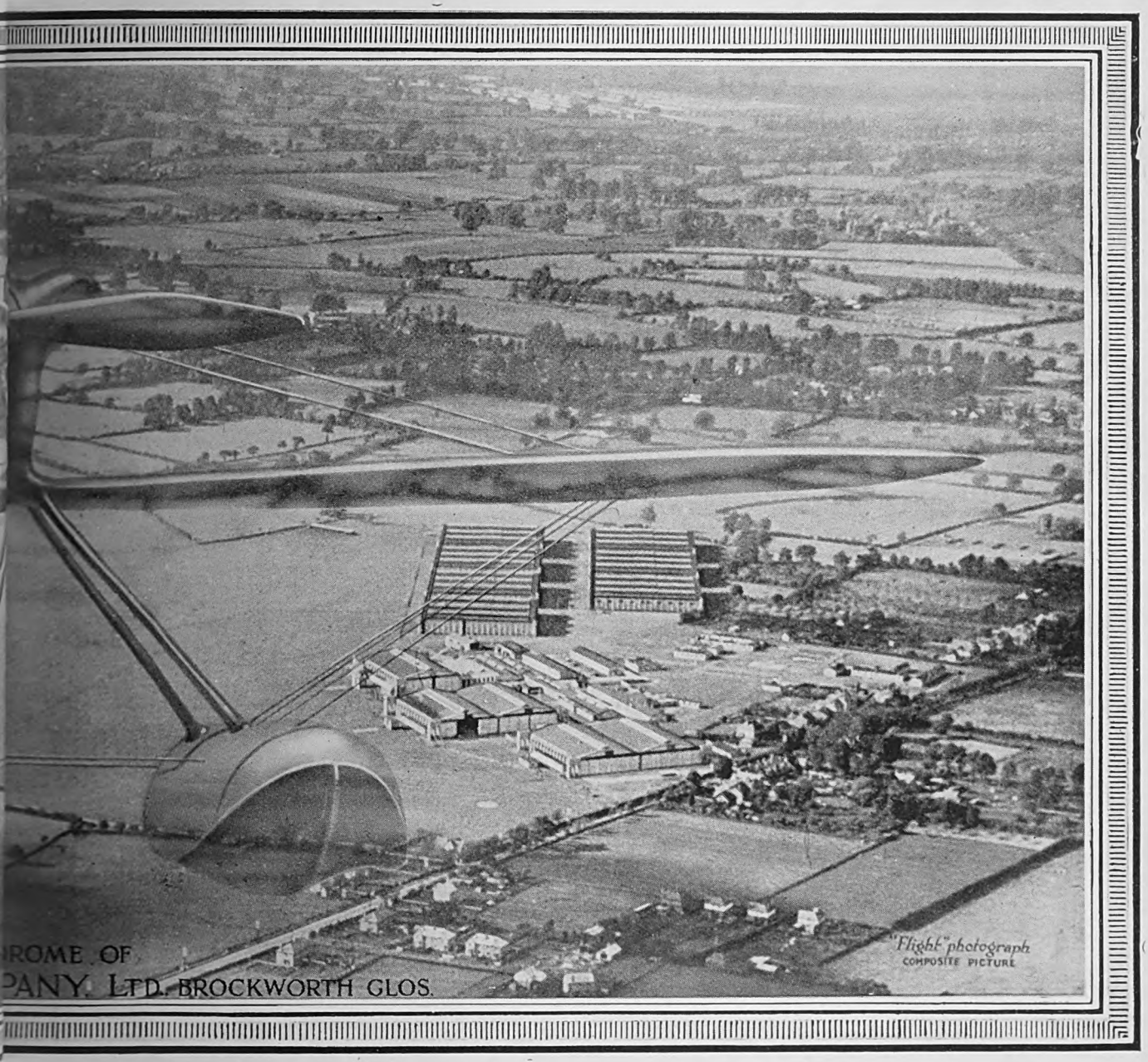

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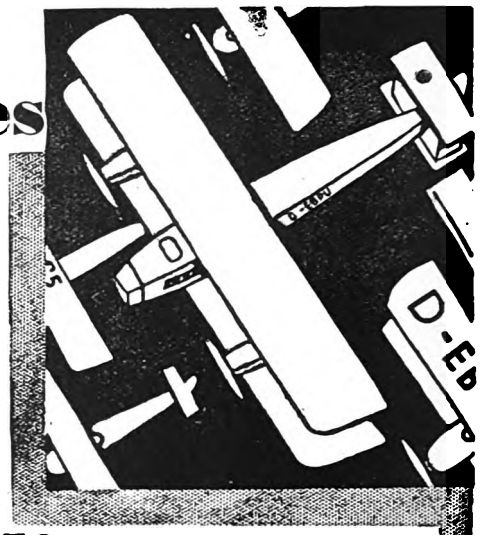

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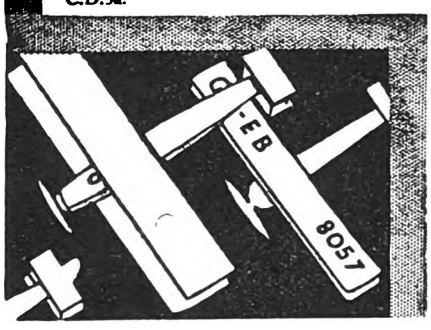

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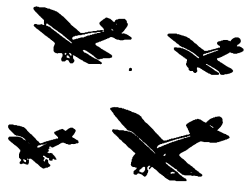

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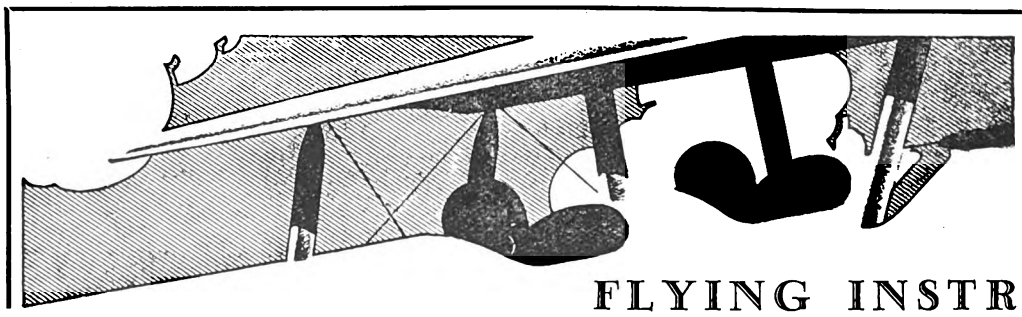

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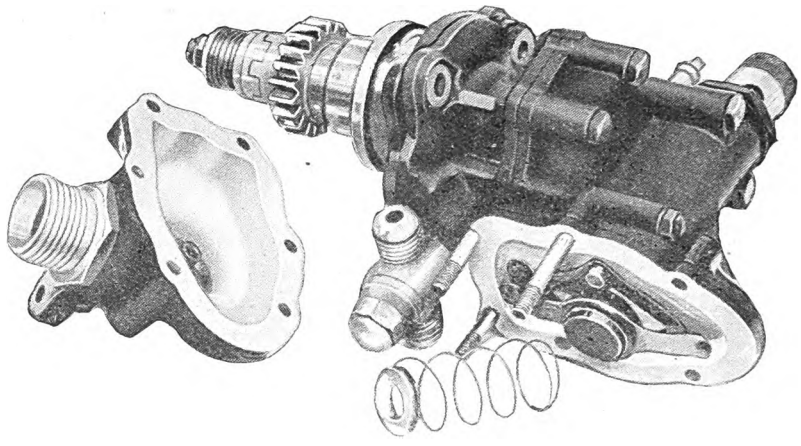

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SEEING THE DISPLAY FOR THE FIRST TIME.

One's status as a newcomer is not quite as authentic as it might be because in the course of duty one sees more flying than most people ever want to, but even so the R.A.F. Display is a distinctly new experience. Nobody who has not sat through many flying meetings—and helped to arrange a few—can properly appreciate the truly marvellous staff work of the Display. If Britain's aerial hosts lurk in such admirable invisibility and turn up on the spot so opportunely at all times, this country is safer than in the rosiest dreams of anti-militarism.

From a spectacular standpoint the Display relies chiefly on quantity and co-operation. Throughout the whole day there was scarcely any dangerous flying; certainly none involving the spectators in the slightest risk, and yet the show was a right royal spectacle without this seemingly essential adjunct to military aviation.

The innate lust for *panem et circenses* which is common to all men makes one rather regret the uniform restraint and regard for safety after seeing what R.A.F. pilots will do for fun when the official eye is not officially on them. The possibilities for a really heart-stopping show arouse all the mischief in one's being. One had a feeling that each individual pilot on Saturday was smiling in his sleeve at the idea of 200,000 spectators of whom the great majority thought that the R.A.F. was extending itself to provide thrills, whereas it was merely going through its drill a little more carefully than usual.

The Headquarters Race was interesting from the variety of aircraft and the ranks taking part. Obviously there are some fairly senior officers who are not promoted "out of the air."

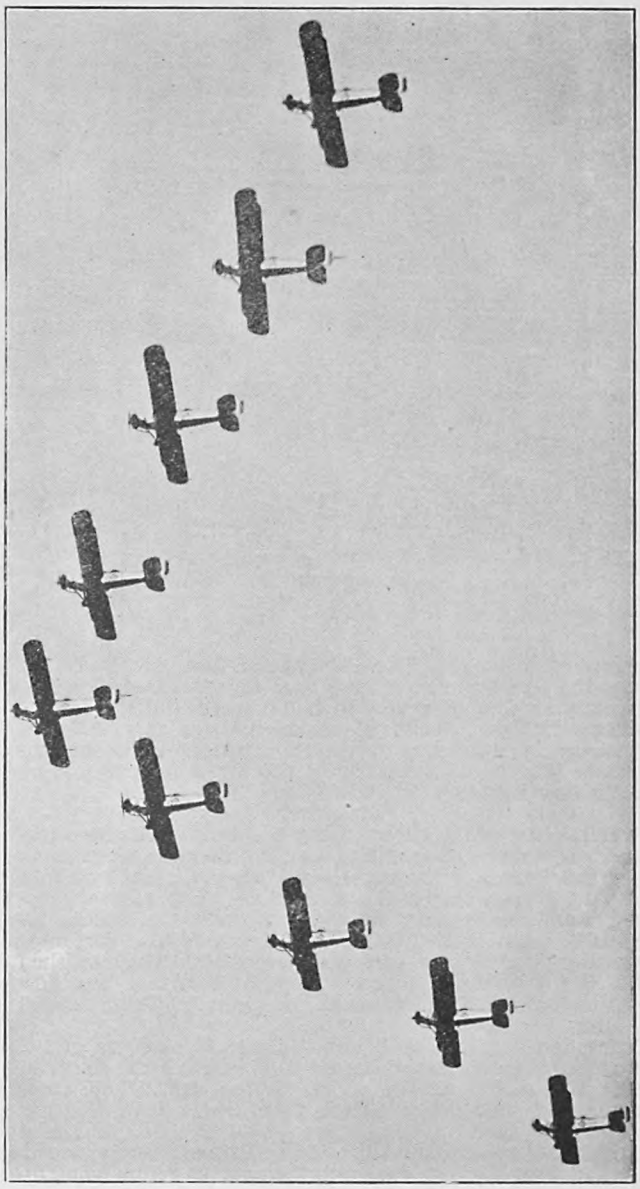
The message-picking-up event was most pleasing in that it gave the spectators a close-up of a manœuvre on the ground, and that is what the spectator begins to thirst for after seeing high evolutions for some time.

The really excellent formation flying of the "territorials" of No. 600 City of London (Bomber) Squadron, Auxiliary Air Force, was a thrill in itself, apart from the fact that the pilots were not regular R.A.F. The artillery observation event derived its main appeal from associations fifteen years old, and one suggests a specially designed siren to add to the realism of approaching shells.

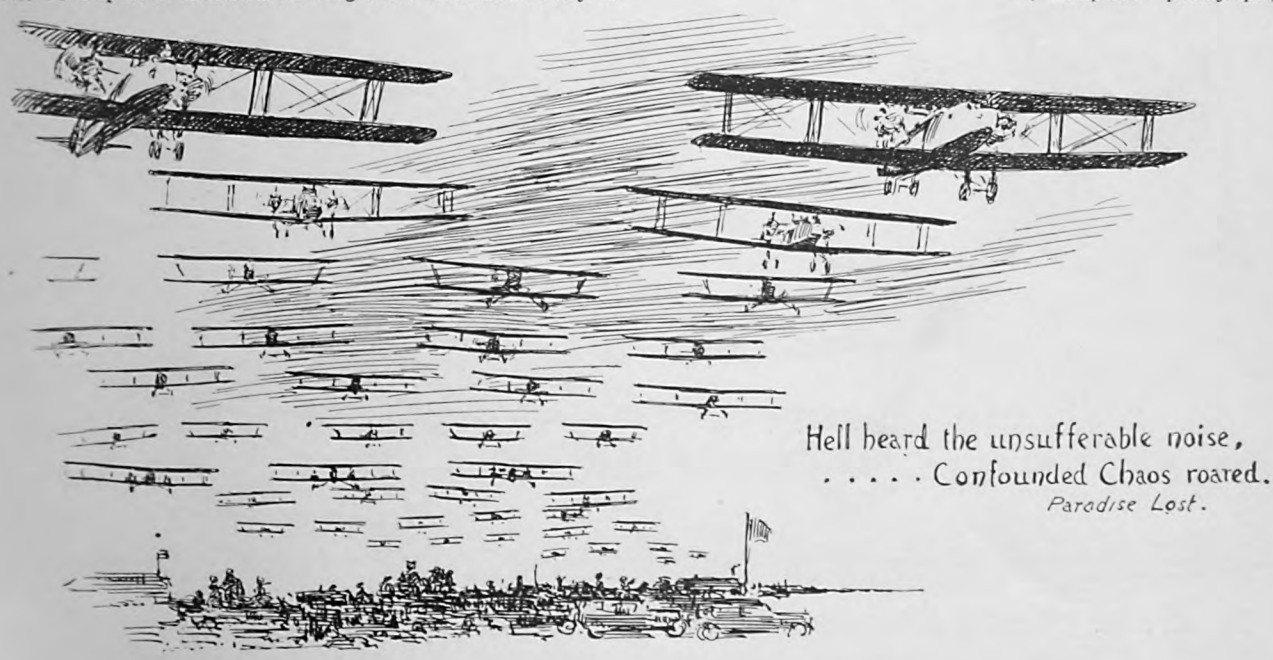
THE NIGHTMARE.

With eyes attuned to the lines of such machines as the Fairey Fox and Firefly, or even the useful but unæsthetic Siskin, the demonstration of experimental aircraft can only remain in one's memory as a diabolic orgy. Someone said it was funny without being vulgar, but to the artistic eye it had distinct elements of obscenity. The Autogiro took off first, and it heaved itself upwards after the shortest run one has yet seen it make and climbed remarkably steeply. The Pterodactyl followed and flew incredibly about with flippers flipping and nose peering like a blind bat deciding which way to go. The Handley Page Gugnunc, even stalling off at an impossible angle with all slots open and flaps down, looked quite suburban and respectable by contrast. The three flew a circuit or two in formation and were reminiscent of nothing so much as lobster salad—and after.

In the demonstration which followed the Autogiro really showed to best advantage, flying past the enclosures at about 25 m.p.h. or less and landing twice with absolutely no



IN SQUADRON "V" FORMATION.—No. 600 (City of London) (Bomber) Squadron, Auxiliary Air Force, in perfect alignment at the R.A.F. Display.
—("Aeroplane" photograph.)



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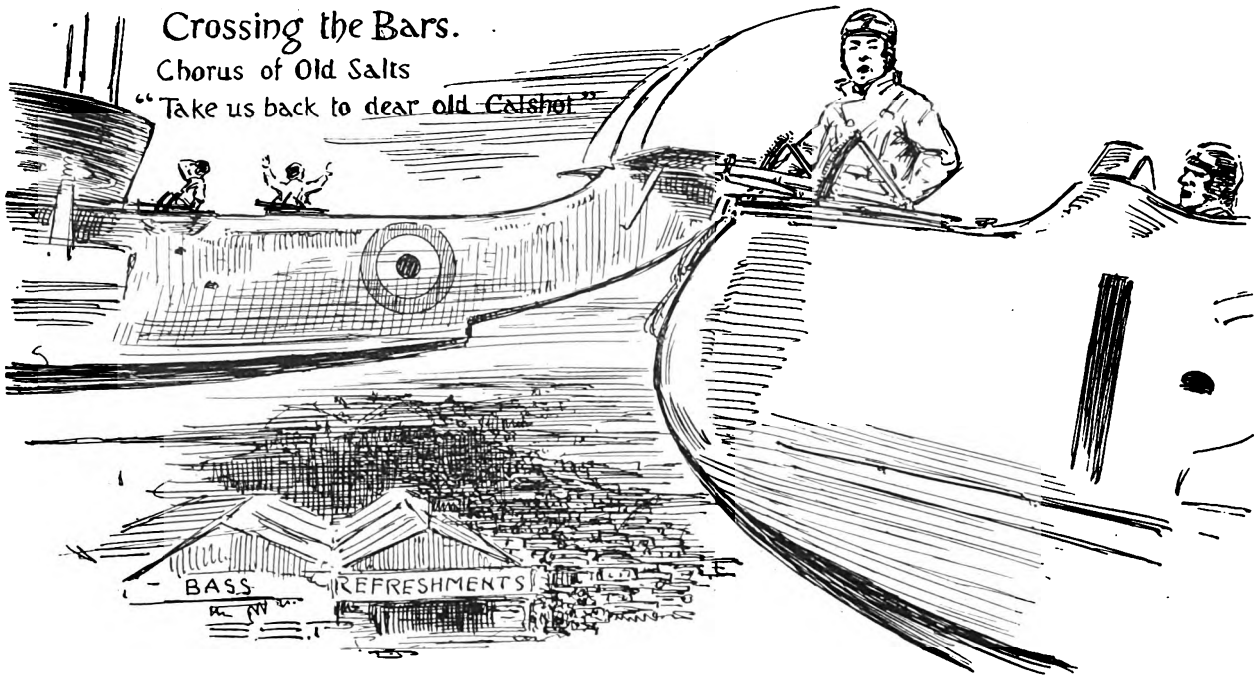


forward run at all. The Pterodactyl flew low and slow about the field and also made a very slow landing, while the Gugnunc showed off a very high top speed and did several stalled landings. The sight of these three very different principles in successful operation certainly gave the impression that human mastery of the air is progressing, no matter how humorous the means may look.

PAGEANTRY.

The take-off of the three fighter squadrons and three day bomber squadrons was a fitting start to the main programme after the arrival of the royal cars. They throbbed off into the blue to gain height and position for their next appearance, and immediately the two aerobatic Gamecocks reappeared from their lurking and burst into a series of beautifully timed and executed aerobatics. They finished with half a turn of spin off a long vertical zoom and flew away in formation before one realised that they had stopped spinning.

They had hardly gone before the four Flycatchers of No. 404 (Fleet Fighter) Squadron dived down from the south in easily the most thrilling arrival of the day. They came steeper and with more throttle than any others and did one's heart good in consequence. The tents that had miraculously appeared in the middle of things were viciously attacked with machine guns and then bombs before going up in flames.

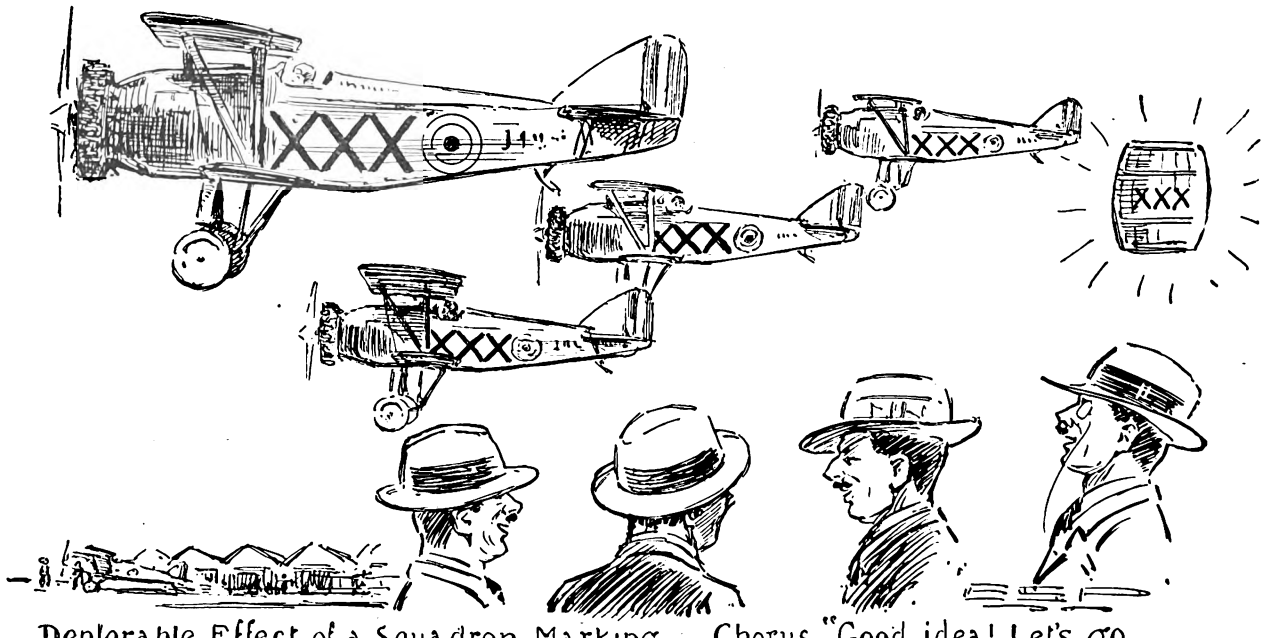
The converging attack was one of the most spectacular things in the display and reminds one rather of the 1914-18 dog fight, although order reigns in an apparently regardless melée. It impressed more than the aerial battle earlier, in which the bomber took things more tamely than the manœuvrability of a Horsley seemed to warrant.

The Flycatchers suddenly dashed off the scene with the abandon that made their whole event so attractive and the six squadrons flew over in formation and with soul-stirring diapason. A minute later they dived over the enclosures, but lost some impressiveness by being apparently throttled fairly well back. Noise is an effective commodity, and one almost wished they had exploited what revs. those same engines have to show in the "five-minutes-only" zone in their type-tests.

As they receded the five Supermarine Southamptons from Calshot came over and then turned and flew back low in formation. The execution of the manœuvre was striking. One saw them converging as they dived until they got into the tightest possible formation just over the field and spread to safer distances as they zoomed beyond.

Their appearance had given the day bombers time to diverge to three quarters of the sky, and they now flew past each formation just above another, and did further evolutions while R.101, which cannot lurk as effectively as the other aircraft, came over from Golders Green where it had been vainly trying to hide among the chimneys. It flew rather high, considering it had been formally invited, but it was prompt to the second like all the events.

The flight aerobatics by the Gipsy Moths of the Central



Deplorable Effect of a Squadron Marking. Chorus, "Good idea! Let's go and have one."

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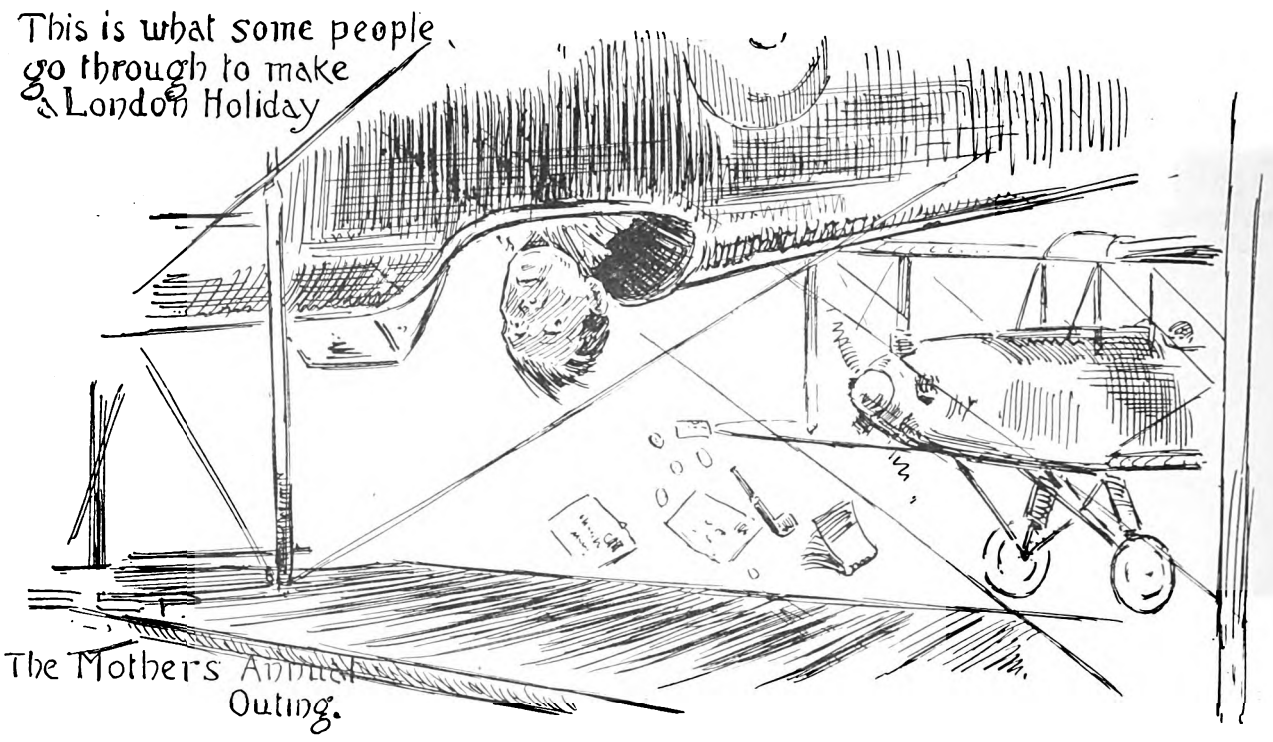

Flying School were almost perfect, but lost by contrast with others one has seen by being rather high up. Inverted formating is an impressive art, but something less difficult and closer in might be more effective.

The parachute event was one of the most popular on the programme, and it really is most impressive. The public applause was partly for the temerity of the six gallant actors in a Hendon holiday, and partly because they all tumbled to earth quite close to the stands and imparted the distinct personal touch which is so difficult to give to any flying event. The pull-off was timed to a nicety and all landed within 150 yards of the railing, and one seemed almost to act the unwilling grate-crasher to the Royal box.

Between events, in the few unoccupied seconds, the squadrons of the big fly-past appeared from nowhere, in turn, and landed in formation so that one marvelled at the stage managing.

The smoke aerobatics made a pretty turn and catered to novelty with great success. The crazy flying was almost immoral, and was probably as dangerous as anything in the Display. The approach in formation with vicious opposite sideslip, ending with a landing with side-drift and tails towards each other, was a piquant bit of comedy.

The most spectacular event was the Squadron Aerobatics by No. 43 (Fighter) Squadron. Roped together their formations were the most perfect of the day and were maintained through all their loops and other evolutions. The first loop got slightly off line on the top, but every machine deviated by exactly the same amount and gave a striking proof of accurate station-keeping.

The parade of new and experimental types was the most interesting of the events. And one hereby elects the Fairey Firefly as the new holder of the title of the World's Most Beautiful Aircraft. Rumour, from official circles, says that at least one other aeroplane can out-perform it, but the perfection of its lines leaves one strangely cold to mere efficiency. As it flies at something well over 200 m.ph. at outrageous altitudes the Firefly justifies itself thereby, and while it darted across the sky with upward slow rolls, looking really fairylike, it gained in impressiveness from the nice noise of the Rolls-Royce F engine. There was variety, novelty and supreme performance among the new types, and the De Havilland intercepter attracted a good deal of interest.

The attack on the kite-balloon included the best imitation of one's own idea of an air fight with its defenders as well as a right thrilling vertical dive on the ill-fated gasbag by the third attacking craft.

The set piece, an orgy of destructiveness in ingenious disguise, was mainly interesting from the variety of aircraft participating therein. The anti-aircraft effects were excellent, and one can only suppose that the distant aircraft were warned by W/T when they were under fire so that they could pitch overboard the "bursts," because they were uncannily well timed. To a hypercritical eye the shells gained slightly in velocity as the target receded, but it was splendid fun.

The arrival of the locally organised force of planters was amusing, if only because of the amazing capacity of the Victorias. They disgorged planters until one wondered if there were not a trap door somewhere in the stage. Afterwards one noticed that some of them left on foot, and as one can only assume that they had offered to walk home in order to give the captured pirates a seat in the troop-carriers the last objection of the pacifists is answered. Next to unconditional and conscientious submission to pirates comes kindness to criminals when captured.

The genuinely interesting nature of the R.A.F. Display is best proved by the traffic block in which one spends so much time for an hour or two after leaving it.—F. D. BRADBROOKE.

RE-KENNELLED.

On June 29 the R.101 was taken from the mooring mast to the shed so that the R.100 might be taken out for her trials. Certain damaged portions of fabric on the skin of the R.101 are to be made good. The rippling of the airship's skin was noticeable at the Display on June 28.

While the airship was out on Saturday weather-maps were satisfactorily received by her from the meteorological station at Cardington.

THE R.100.

In the House of Commons on June 25, in reply to a question by Mr. C. Williams for Mr. D. G. Somerville, the Under-Secretary of State for Air said that the cost of repairing R.100 after her recent flight, exclusive of overhead charges, would be £675, of which £490 had been spent or incurred to date. The repairs were due for completion by the end of this month, but, at the request of the Canadian authorities, the flight to Canada was being postponed until after the close of the Canadian elections on July 28. The airship would probably stay some 14 days in Canada.

The question of flights from Montreal would be settled between the Canadian Authorities and the Director of Airship Development after her arrival. One of the objects of the present scheme of development was to obtain information about the normal cost of maintenance and length of life of airships of this type. Further experience would be necessary before any reliable figures could be given.

RULES FOR CROSSING THE CHANNEL.

From time to time there is a certain amount of argument "about it and about"—it in this case being the system which is used for the reporting of aircraft on crossing the Channel. The Air Ministry General Notice No. 16 of 1930 summarises all the existing arrangements so that nobody has any excuse for doing the wrong thing. All they have to do is to read the three pages of matter and study the maps, unless the aircraft has radio. In the latter event all the pilot has to do is to report his position by radio on crossing each side and in emergency to give the appropriate distress call. To carry radio seems the simplest way out.

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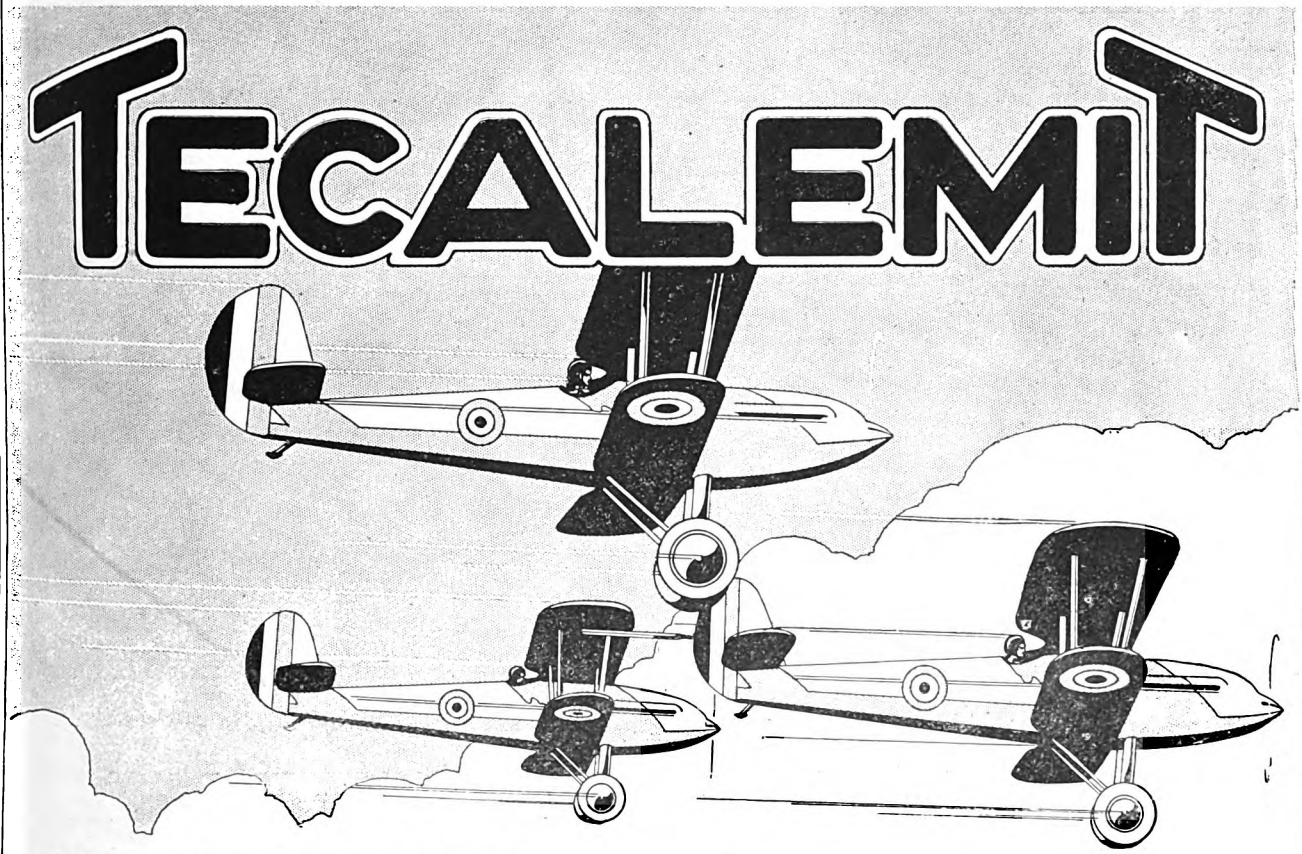

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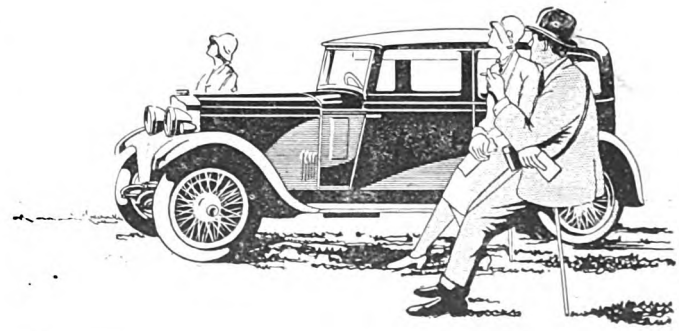

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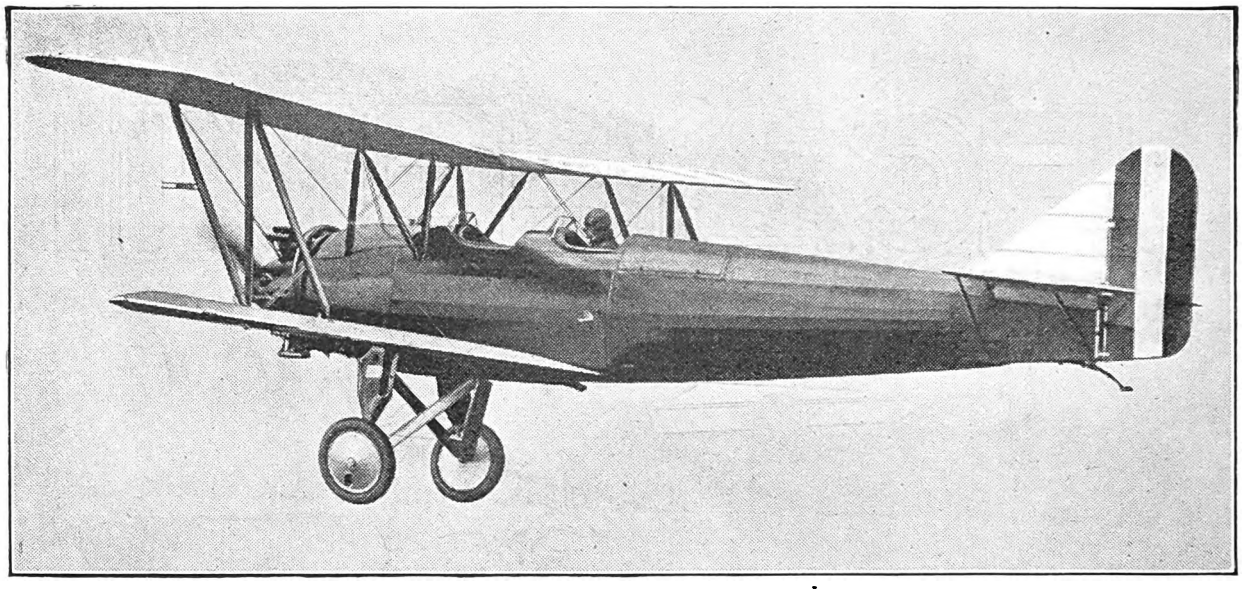

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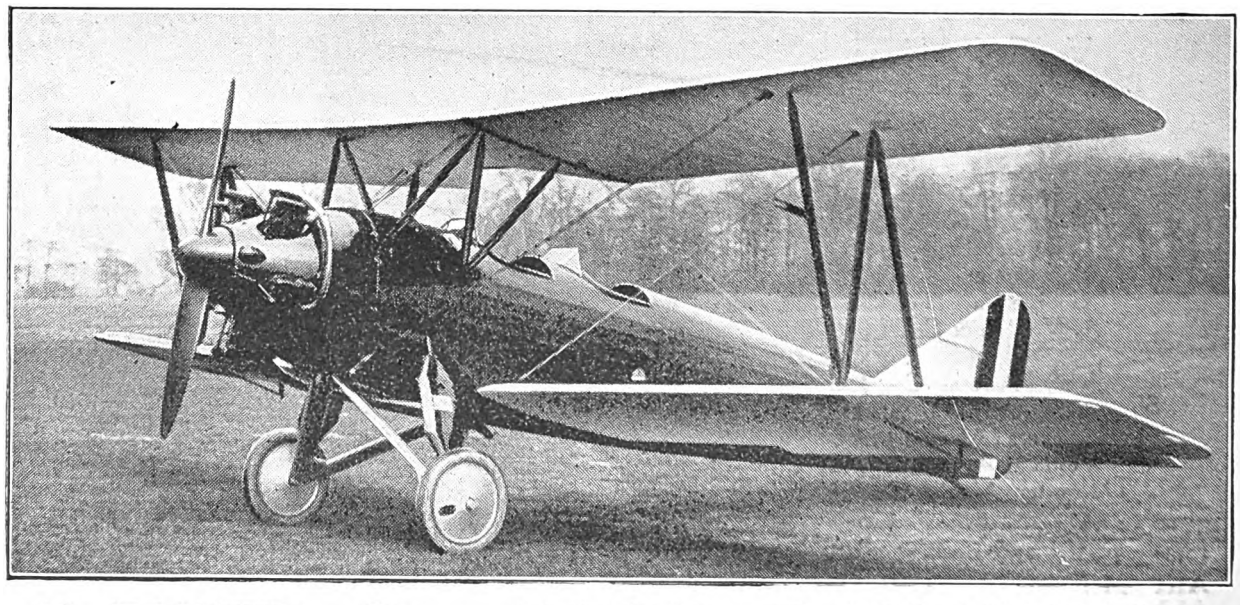

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THE ROYAL AIR FORCE.

The London Gazette.

Air Ministry, June 24.

ROYAL AIR FORCE.

GENERAL DUTIES BRANCH.—The following Plt. Offs. on probation are confirmed in rank:—R. E. H. Beaton, G. H. A. Blackwood, R. A. Davies, T. W. Hoyle, G. P. Longfield, G. P. Marvin, W. M. Rankin (Mar. 17); A. C. Watson (June 5).

The following Plt. Offs. are promoted to the rank of Flying Officer:—H. C. Friday (Apr. 8); A. G. M. Cary, H. L. McCulloch, R. M. Messiter, C. Sarsfield-Sampson (May 2); E. C. Hudleston (June 15).

Flg. Off. A. M. Watts-Read takes rank and precedence as if his appointment as Flg. Off. bore date Dec. 29, 1928. Reduction takes effect from May 9.

The following are placed on the half-pay list, scale A:—Wing Cdr. D. A. Oliver, D.S.O., O.B.E. (June 22); Flt. Lt. K. L. Harris (June 17).

Flg. Off. A. W. Whitta is transferred to the Reserve, Class A (June 11).

ACCOUNTANT BRANCH.—The following Plt. Offs. on probation are confirmed in rank and promoted to the rank of Flg. Off. (June 3):—C. E. Hunter, F. W. Judge, E. A. Biddle, C. F. G. Rogers, K. Fraser.

RESERVE OF AIR FORCE OFFICERS.

GENERAL DUTIES BRANCH.—Flg. Off. C. E. B. Winch is transferred from Class C to Class A (April 30).

The following Flg. Offs. relinquish their commissions on completion of service (June 10):—B. R. C. Coope, A. Thomson.

MEDICAL BRANCH.—D. S. Buchanan is granted a commission in the Special Reserve as a Flg. Off. (Feb. 12); Flt. Lt. G. R. Nodwell, M.B., is transferred from Class D (ii) to Class D (i) (Jan. 29).

AUXILIARY AIR FORCE.

GENERAL DUTIES BRANCH.—No. 603 (CITY OF EDINBURGH) (BOMBER) SQUADRON:—Plt. Off. S. M. Musgrave relinquishes his commission on account of ill-health, and is permitted to retain his rank (June 25).

No. 604 (COUNTY OF MIDDLESEX) (BOMBER) SQUADRON:—The following to be Plt. Off.:—C. P. Gabriel (June 2).

Appointments.

Week ending June 30.

GENERAL DUTIES BRANCH.—Squadron Leaders J. C. Slessor, M.C., to R.A.F. Depot, Uxbridge, 20/5. G. E. Gibbs, M.C., to Air Ministry (D.O.I.), 23/6.

Flight Lieutenants N. H. D'Aeth, to Special Duty List, 27/6. S. G. Connolly, to No. 5 F.T.S., Sealand, 16/6. C. C. Edwards, to Station H.Q., Hornchurch, 25/6.

Flying Officers J. S. Wilkins, to R.A.F. Depot, Uxbridge, 13/6. C. G. Davies, to No. 441 (Fleet Spotter Reconnaissance) Flight, 19/6.

Pilot Officers D. H. A. Golege-Steel and N. Stratton to No. 2 Sqdn., Manston, 17/6. G. E. Agard-Butler, C. H. Glover, B. Paddon, H. G. J. Purcell, and S. H. Wiltshire, to No. 4 Squadron, South Farnborough, 17/6. D. W. Lydell, and J. M. Waddell, to No. 13 Sqdn., Netheravon, 17/6. A. H. Houghton, and F. J. B. Keast, to No. 16 Sqdn., Old Sarum, 17/6. D. C. Harrison, to No. 26 Sqdn., Catterick, 17/6. G. Calvert, and J. T. Mynors, to No. 12 Sqdn., Andover, 17/6. I. L. S. McNicol, and G. E. S. Williams, to No. 58 Sqdn., Worthy Down, 17/6. C. E. Morse, to No. 100 Sqdn., Bicester, 17/6. N. Alexander, G. Bearne, and G. N. Warrington, to No. 501 Sqdn., Bristol, 17/6. F. C. Allen, and W. E. Grant, to No. 502 Sqdn., Aldergrove, 17/6. G. M. Ievers, and I. A. Critchley, to No. 503 Sqdn., Lincoln, 17/6. C. A. Ball, and N. J. Capper, to No. 504 Sqdn., Nottingham, 17/6.

STORES BRANCH.—Flight Lieutenant A. J. Cox, M.B.E., to R.A.F. Base, Calshot, 12/6.

Flying Officers H. A. Wrigley, to School of Balloon Training, Rolleston Camp, 23/6. J. S. French, to No. 1 F.T.S., Netheravon, 23/6.

The Half-Yearly Promotion List.

The Air Ministry announces that the following promotions are made with effect from July 1, 1930:—

GENERAL DUTIES BRANCH.

Wing Commanders to be Group Captains:—T. G. Hetherington, A. H. Jackson, O. T. Boyd, O.B.E., M.C., A.F.C.

Squadron Leaders to be Wing Commanders:—R. L. G. Marix, D.S.O., C. G. Tucker, E. J. Hodsoll, E. J. P. Burling, D.S.C., D.F.C., A.F.C.

Flight Lieutenant to be Squadron Leader.—A. S. Thompson.

Flying Officers to be Flight Lieutenants:—B. H. Godfrey, H. G. Cook, D.S.M., S. H. Reynolds, A. E. Thompson, J. W. Hutchins, G. N. Coward, William Smith, P. J. Hayes, M.B.E., A.F.C., C. W. Booth, M.B.E., A. J. Brister, G. Lansdowne, D.F.C., A. Lees, W. Dickison, D.S.M., John Turner, J. W. Rose, D.S.M., M. Cursham (Lt., R.N.), G. R. M. Robertson (Lt., R.N.), F. M. R. Stephenson (Lt., R.N.).

SUPPLEMENTARY LIST.—*Flying Officer to be Flight Lieutenant*:—R. F. J. Strange.

STORES BRANCH.

Wing Commander to be Group Captain:—F. C. Williams, O.B.E.

Squadron Leaders to be Wing Commanders:—W. F. Bryant, B. W. M. Williams.

Flight Lieutenants to be Squadron Leaders:—H. L. Woolveridge, A. E. Sutton-Jones, P. J. Murphy, J. H. Dale.

Flying Officers to be Flight Lieutenants:—E. V. Bashford, J. McCarthy, C. Littlejohn, M.M.

ACCOUNTANT BRANCH.

Flight Lieutenants to be Squadron Leaders:—H. G. Bushell, G. N. Simon.

Flying Officers to be Flight Lieutenants:—J. M. Hopkins, C. E. Aston.

MEDICAL BRANCH.

Group Captain to be Air Commodore:—H. V. Wells, C.B.E., M.R.C.S., L.R.C.P., K.H.P.

Wing Commander to be Group Captain:—H. W. Scott, M.B., B.Ch., M.R.C.S., L.R.C.P.

Squadron Leaders to be Wing Commanders:—R. S. Overton, M.R.C.S., L.R.C.P., D'Arcy Power, M.C., M.R.C.S., L.R.C.P.

Flight Lieutenant to be Honorary Squadron Leader:—W. S. Stalker, M.D., Ch.B., D.P.H.

PRINCESS MARY'S R.A.F. NURSING SERVICE.

Senior Sister to be Acting Matron:—Miss W. M. Coulthurst.

Sister (Acting Senior Sister) to be Senior Sister:—Miss M. W. Walker.

Sisters to be Acting Senior Sisters:—Miss N. G. Rees, Miss C. Walker.

No. 32 (Fighter) Squadron.

THE AEROPLANE understands that No. 32 (Fighter) Squadron is shortly to be equipped with Hawker Hornets (Rolls-Royce F.XI S engine) single-seat intercepter fighters.

No. 32 (Fighter) Squadron is stationed at Kenley, Surrey, and is commanded by Sq. Ldr. B. E. Baker, D.S.O., M.C., A.F.C.

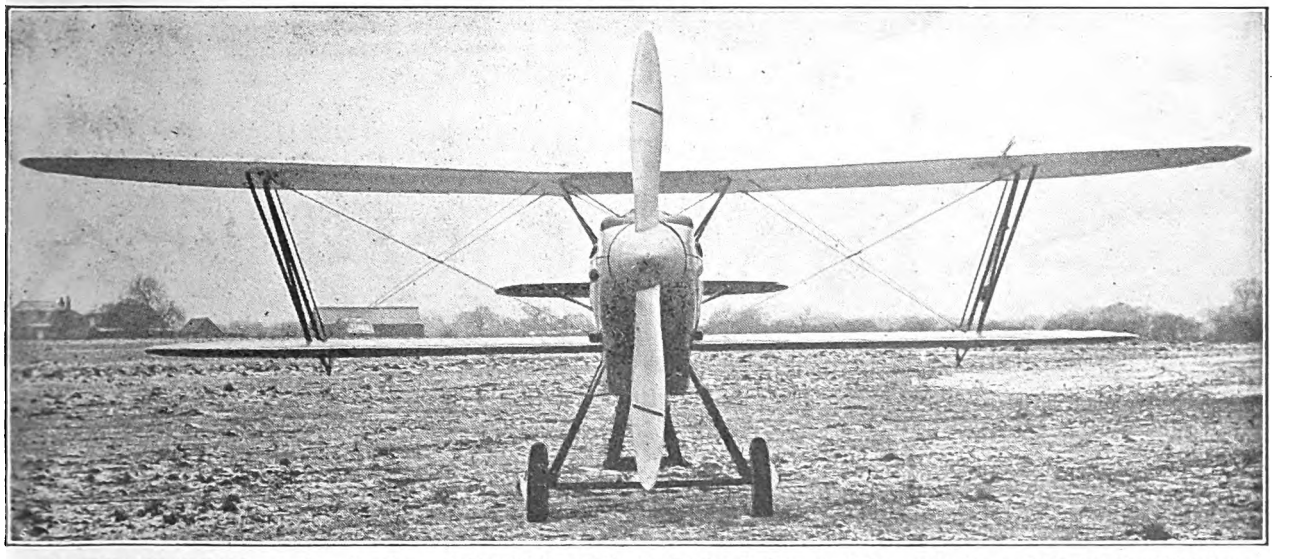
Night Flying.

An Air Ministry *Notice to Airmen* states:—

Royal Air Force aircraft will be flying nightly over the areas described below, between the times and during the periods mentioned. Above the altitudes quoted the aircraft will not exhibit navigation lights, unless other aircraft are observed in their vicinity.

Within the area bounded by straight lines joining Newbury—Swindon—Warminster—Winchester—Newbury, between 1900 and 0100 hours, from June 30 to Aug. 31, inclusive, at 3,000 feet.

Eastward of straight lines joining Aldeburgh—Cambridge—Dartford—



AN INTERCEPTER.—A front view of the Fairey Firefly II (Rolls-Royce "F" engine), an Intercepter Fighter of extremely high performance.

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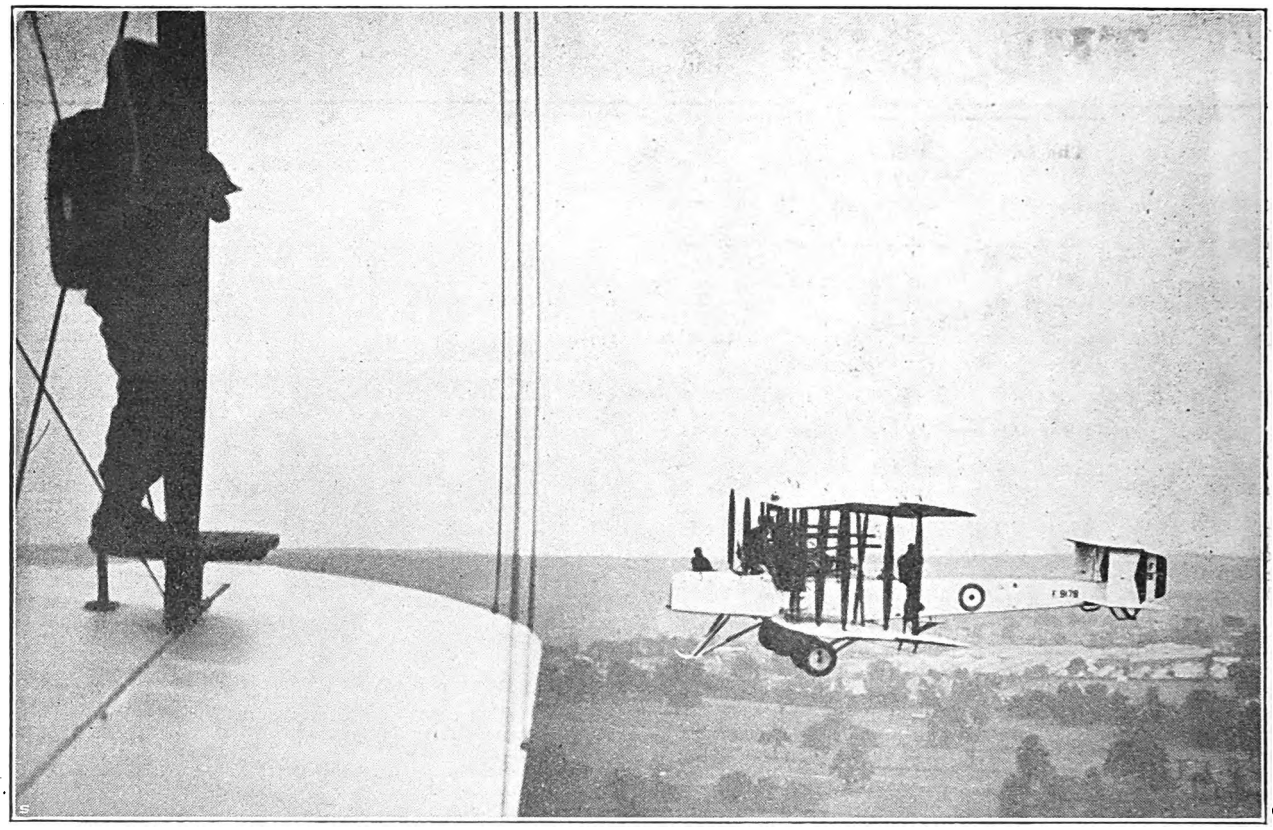


PARACHUTE TRAINING, I.—A member of the R.A.F. Parachute Training Section standing on the special platform of a Vickers Vimy (Jupiter) ready for a pull-off drop,—as demonstrated at the Display.

Beachy Head, between 19.00 and 24.00 hours, from July 15 to 17 at 5,000 feet.

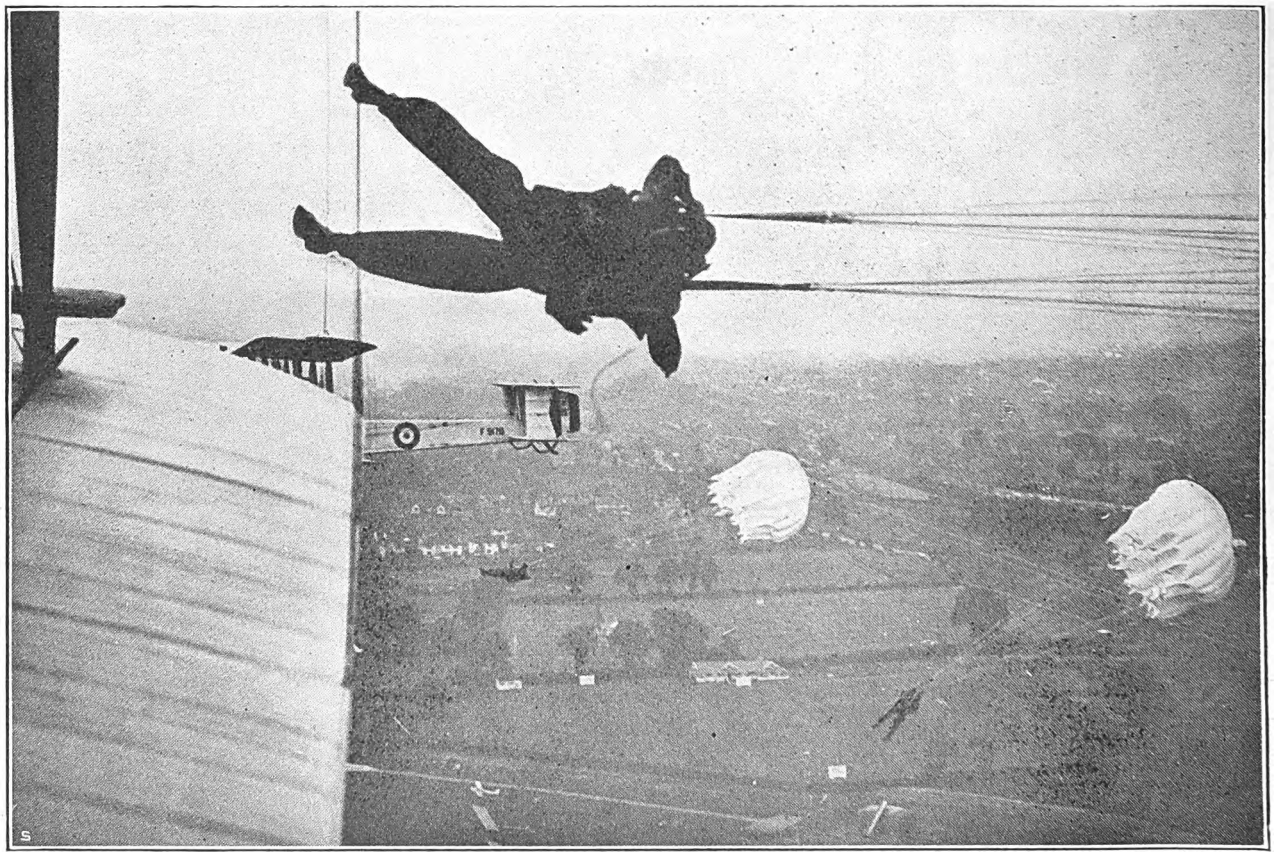
Southward of straight lines joining Beachy Head—Sevenoaks—Farnborough—Netheravon—Bournemouth, between 1900 and 2400 hours, from July 22 to 24 at 5,000 feet.

Parachutes.

In the House of Commons on June 25 in reply to a question by Mr. Day, the Under-Secretary of State for Air said that parachutes had been provided for the Royal Air Force on a scale sufficient to equip every pilot and member of the crews of all aircraft. There had been difficulties in the carriage or use of parachutes with certain types of aircraft but these difficulties were in process of being surmounted. Quick-release-gear experiments had been developed and great progress had been made.

Colonial Allowances.

In the House of Commons on June 25, Capt. Sir George Bowyer asked the Under-Secretary of State for Air whether he was aware that members of the R.A.F. in 'Iraq, whilst in hospital, were deprived of their Colonial allowance and



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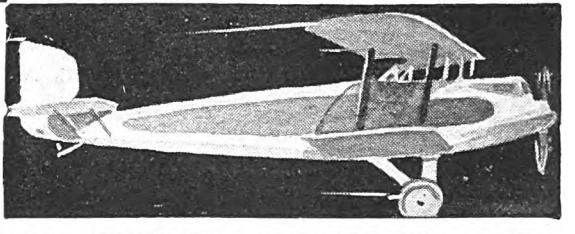

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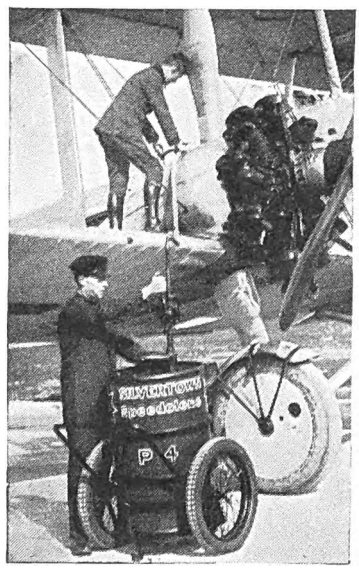

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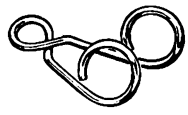

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had to pay 2s. 6d. a day as a hospital charge, thus undergoing a total loss of 11s. 6d. a day.

Mr. Montague said that the Secretary of State for Air did not see his way to alter the regulations upon this subject. The charge of 2s. 6d. a day was the normal hospital stoppage for officers, and the issue of Colonial allowance was also properly suspended because it was not an ordinary emolument, but an additional allowance granted solely to meet the extra cost of living in a command abroad as compared with the cost at home. When an officer was in hospital and was not subject to the additional expenses which the allowance was intended to cover its issue was clearly not justified.

The R.A.F. Dinner Club.

The eighth Annual Dinner of the Royal Air Force Dinner Club was held at the Connaught Rooms on June 27. Air Chief Marshal Sir John Salmond presided, and about 160 members were present. Among them were:—

Marshal of the Royal Air Force Lord Trenchard.

Air Vice-Marshals Borton, Lambe, Ludlow-Hewitt, Longcroft, Newall, Sir Vyell Vyvyan, Webb-Bowen.

Air Commodores Bowhill, Fellowes, Hanson, Holt, MacEwen, Warrington-Morris.

Captain Birkett, R.N.

Group Captains Babbington, Barratt, Barton, Bowen, Busteed, Christie, Godman, Gossage, McHardy, Nicholl, Pattinson, Peel Ross, Randall, Smith, Welsh.

Lieut.-Cols. Child, Dixon-Spain, Fell.

Wing Commanders G. C. Bailey, the Hon. Maurice Baring, Black, Boyd, Cordingley, Colbran, Dore, Evill, Garrod, L. Gould, R. Graham, Guilfoyle, James, Macdonald, Maude, Maund, Miley, Maycock, Oxland, Parry, Ryan, Robinson, J. Sowrey, Sutton, Tyssen, Walser, and Ward.

Lieut.-Comdrs. Read and Scarisbrick.

Majors Beatson, Burt, Crighton, ffiske, Lambert, Moller, and Pye-Smith.

Sq. Ldrs. Andrews, Brown, Bryant, Burge, Capel, the Hon. R. Cochrane, Cockey, Cole-Hamilton, Coningham, England, Farrington, Gilley, Glenny, Grigson, Lees, Leslie, Leacroft, Marix, Maynard, Mackay, Pidcock, Rea, Ridley, Sanders, Scroggs, Sorby, Stradling, Thomas, Wann, and Wilkes.

Captains Balfour, Dean, Earnshaw, Findlay, Geagh, Hogarth, Ramsay, Sayers, Thurston, Vaughan, and Yeatman.

Flt. Lts. Addams, Allen, Andrews, Battle, Broughall, Clogstoun, Collett, Forrow, Gayford, Halford, Hilton, Huxley, Hyde, J. I. T. Jones, Kirk, Martin, Massey, MacFadyen, Pope, Pattison, Russell, Rugg, Robertson, Thornton, Wakefield, and Wilson.

Messrs. Birney, Crosbee, Derry, Ensell, Fielden, Gamble, Gowring, Grey, Howes, Hurst, James, H. A. Jones, D. P. Jones, Neate, Newsome, Presland, Pumphey, Scott, Stubbs, Vlastow, and Walker.

Air Chief Marshal Sir John Salmond gave a short address, and congratulated the Committee and Honorary Secretary. The rest of the evening was spent by those present in reviving old memories and evolving new schemes. One hopes that an effort will be made in good time next year to raise the number of members to the limit, and to induce all of them to come to the dinner and bring guests.—C. G. G.

Polo.

The annual Polo Match between the Royal Navy and the Royal Air Force will be played at Ranelagh (Barnes, S.W.13) on Tuesday, July 8, at 15.00 hours.

Last year the R.A.F. helped by a small handicap won the Duke of York's Cup, which is held by the winners of this match. This year the Navy Team have beaten (on June 21) the Royal Horse Guards by seven goals to five.

R.A.F. Officers who wish to attend the match as spectators should apply to Sq. Ldr. W. H. de Waller, A.F.C., Secretary, R.A.F. Polo Club, Halton Camp, Buckinghamshire, for admission vouchers.

Felixstowe Station Sports.

The annual sports of the R.A.F. Station, Felixstowe, were held at Landguard Common on June 25.

The Inter-Flight Challenge Cup was won by Workshops with 121 points. Flying Flights were second with 100 points and Headquarters Flight third with 69 points. The Victor Ludorum Challenge Cup was won by AC. Gilbert, who won the three miles, the one mile and the 880 yards championships.

The winners of the various events were as follows:—

100 *yards handicap*:—Cpl. Camden. 1 *Mile Championship*:—AC. Gilbert. *Three miles team race*:—Flying Flights. *High Jump*:— L/AC. Baker. 220 *yards flat championship*:—L/AC. Jones. *Throwing the javelin*:—L/AC. Moore (106 ft. 6 ins.).

440 *yards relay*:—Headquarters. 2 *miles relay*:—Flying Flights. *Long Jump*:—Team Championship, Workshops, Individual Championship L/AC. Baker (20 ft. 4 ins.). *Pole Jump*:—AC. Baker (9 ft. 1 in.). *Tug-of-War final*:—Workshops beat Flying Flights in two straight pulls. Later on a station team beat the local Police Division.

100 *yards championship*:—L/AC. Jones. 880 *yards championship*:—AC. Gilbert. *Putting-the-Shot*:—AC. Lunnis. 360 *yards hurdles*:—Workshops. 440 *yards championship*:—Cpl. Holbrook. 1 *mile relay*:—Flying Flights. 100 *yards, veterans' race*:—S/M Bennett.

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THE PRESIDENCY OF THE ROYAL AERONAUTICAL SOCIETY.

On June 24 the Council of the Royal Aeronautical Society unanimously elected Mr. C. R. Fairey as President for the next official year, which begins with Oct. 1. The three Vice-Presidents for 1930-31 were re-elected. They are Air Vice-Marshal Sir Vyell Vyvyan, Lt. Col. J. T. C. Moore-Brabazon, and Mr. H. E. Wimperis (Director of Scientific Research, Air Ministry).

Professor Leonard Bairstow (Zaharoff Professor of Aviation in the University of London, and Director of the Aeronautical Department of the Imperial College of Science and Technology at South Kensington) was elected an additional Vice-President for the year.

As President of the Society, Mr. C. R. Fairey should be a great success. Not only is he one of the most successful aircraft manufacturers in the World, which proves that he has unusual business acumen and power of organisation, but he is in addition an unusually able engineer and technician. This combination of qualities naturally accounts for his success.

The combination of scientific ability with commercial and political ability is most unusual. And they are precisely the qualities which are needed to make a continued success of the Royal Aeronautical Society.

This Society has in the past suffered considerably from being too much in the hands of scientists, and so it had lost that popular appeal which is necessary to the success of even the most learned Society. For, after all, the practical men are the people on whom the high-brows depend for their livelihood.

When one first met Mr. Fairey he was a lecturer on electricity, and, one believes, other scientific subjects. These were in the very early days of Aviation, when hardly anybody flew, and those who did fly flew on singularly unscientific aeroplanes. These machines were held together rather by hoping for the best than by any genuine engineering structure, and they were maintained in the air by the sheer skill of their pilots, and not because of their aerodynamic qualities.

The choice in those days was between the Wright type of biplane, which was utterly unstable in every position, and the Farman type of box-kite, which was equally unstable but more easily controlled, and the Blériot type of monoplane, which could be made fairly stable vertically fore and aft but was terribly bad directionally and not particularly good laterally.

Young Mr. Fairey of those days turned his attention to the investigation of inherent stability. He made a considerable number of models of various types, which externally were very unlike any known or imagined type of aeroplane, but were in fact aerodynamically very good flying machines. On the strength of these investigations he became acquainted with Mr. Dunne, who at that time was experimenting with his inherently stable biplane at Eastchurch, in the Isle of Sheppey.

Mr. Fairey joined Mr. Dunne and when he left him, after doing much good work and acquiring valuable knowledge, he became Works Manager with Short Bros., who at that time were producing the first successful float sea-plane in the World.

From Short Bros. Mr. Fairey started the Fairey Aviation Co. Ltd., just about the beginning of the War 1914-18, and from those small beginnings he has built up what is quite one of the most successful aircraft businesses in the world.

From the very beginning Mr. Fairey's knowledge and experience of mathematics, of draughtsmanship, of general engineering principles, of the handling of machine-tools, of works management, of the fitting and assembly of air-craft and their engines, and of rigging and maintenance of aircraft, enabled him to keep check on everything that was done in his works. And to-day, although he has many hundreds of men in his employ, one way or another, he is personally able to criticise the work of any one of his employees in the light of his own experience of that particular job, and can, at a pinch, show a man how his work ought to be done.

Over and above all this, Mr. Fairey is a brilliant conversationalist and an able speaker, who can either argue or persuade an opponent into agreement with him, or at any rate reduce him to impotence.

This extraordinarily wide knowledge of his subject is naturally bound to be of high value to Mr. Fairey as President of the Royal Aeronautical Society. Whatever subject a lecturer may discourse upon he will know that the President of the Society is able to understand everything he says, and may possibly know considerably more about his special subject than he does himself. Likewise, in the Council of the Society, whatever may be the subject which is under discussion, the President will know just about as much that there is to know about it.

The only anxiety that anybody is likely to feel about the election of Mr. Fairey is, lest a man with such great responsibilities as he has, and with so many different aspects of his great business to attend to, should be unable to devote to the affairs of the Royal Aeronautical Society the time which is needed if the Society is to continue to progress in activity and importance as it has done under its present able President. But Mr. Fairey is not the man to undertake any task of which he does not intend to make an outstanding success, and we may rest assured that in allowing himself to be elected to this important post Mr. Fairey has made up his mind that he will give to the work of the Society all the time that is needed.

Taking Mr. Fairey's time on a man-hour basis that will mean that the Society will absorb a good many thousands of pounds' worth of his time while he holds office. In taking over the presidency Mr. Fairey is tackling a job which will need all his qualities, and we may be sure that he will not stint those qualities in the interests of the Society. All will wish him the greatest possible success in his task.

In welcoming the appointment of Mr. Fairey all who are concerned for the good of British Aviation will wish to pay tribute to the retiring President, Colonel the Master of Sempill, who has made such an extraordinary success of his term of presidency. In fact, so successful has he been that undoubtedly he would have been elected to yet another term as President if the rules of the Society had allowed such a re-election.

When Colonel Sempill took over the presidency the Society was in a distinctly difficult position. The previous President, Sir Sefton Brancker, who said recently that somebody had described him as "ignorant but useful," had certainly been useful and far from ignorant, but he had had to pull the Society through the worst years of the post-War slump, when money was scarce and interest in Aviation was much less than it is now. So when his term of office ended finances were low, and there was a general lack of liveliness. Lectures were poorly attended, and most of the lectures were rather dull, because the high-brows of the Society had had too free a hand with the programmes.

As soon as he assumed office Col. Sempill set himself to work with all his Scottish energy to make the Society of practical use rather than a mere academic success. Those who have watched and admired his work often wonder how he managed to spare so much time for the Society when he has so many commercial interests of his own which demand his time and energy. Whether he has deliberately neglected his own business for the good of aviation, or not, one does not know. At any rate one hopes sincerely, that his business affairs have prospered as much as has the Royal Aeronautical Society under his presidency.

So far as one's memory goes, one cannot recall a single lecture of the Society at which Col. Sempill has not taken the chair himself. And as a chairman he has been extraordinarily successful. He always knows who are the people at each meeting who know most about the subject which is being discussed And he has made a custom of calling on those people to give their opinions.

This habit has had several good effects. Not only has it made the discussion more interesting and varied but it has forced people to get up and speak, for nobody can refuse Col. Sempill's way of asking people to join in the discussion, —and through this quite a number of people who might have been diffident about getting up and speaking have acquired the habit of talking on their legs, with the result that the discussions under Col. Sempill have become more and more varied and interesting year by year. Consequently the meetings have been better and better attended as people have learned that the discussions were worth hearing.

At the risk of appearing immodest one cannot refrain from hoping that the extensive reports of these lectures, which have appeared week by week in THE AEROPLANE, have helped somewhat to bring people to the lectures. By publishing a carefully prepared précis of the discussions as soon as possible after the lecture this paper has endeavoured to give its readers a fair and proper idea of the interest of each lecture, and of the subject under discussion. And the fact that there has been hardly any objection from either lecturers or speakers in the discussion about errors in these reports shows that they have been reasonably accurate, so far as they went.

One of the nicest compliments that has ever been paid to THE AEROPLANE came some few months ago by Capt. Pritchard, the hard-working Secretary of the Royal Aeronautical Society, when he asked that a preliminary notice of a certain lecture might be given special prominence in THE AEROPLANE, as he found that better attendances at the lectures resulted from their being made known in THE AEROPLANE, than from circularising individually the members of the Society.

Nothing has given greater pleasure to the staff and editor of THE AEROPLANE than the efforts which we have made to improve the status of the Royal Aeronautical Society. It

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is the oldest Society of its kind in the World—in fact, it is the oldest aeronautical association of any kind in the World, and therefore it is an institution of which we naturally feel proud. But mere age and respectability is not reason enough for the existence of the Society, and there have been times when the Royal Aeronautical Society has threatened to become a definite danger to aviation.

There has been in times past a distinct tendency for a little clique of self-estimated pseudo-scientists to make the Society an institution for their mutual admiration and, presumably, ultimate self-advancement. There was a tendency for the same people to get up at meeting after meeting and inform the World through the subsequent verbatim report in the Society's Journal, what splendid fellows their immediate friends and associates were. And there has been a tendency for the same clique to keep honours and awards within the sacred circle of their associates and hangers-on. This tendency was very nicely expressed by an able official of the Air Ministry when on one occasion, after several people had told the lecturer what a wonderful person he was and how wonderful were the other members of their close corporation who had spoken on the lecture, this gentleman arose and began a criticism of some of the points in the lecture by saying "a chorus of praise has a monotony which is tolerable only in Heaven."

By being considerably ruder than that to the chorus who have so continually praised one another THE AEROPLANE has, at times, made itself extremely unpopular amongst the pseudo-scientists of aeronautics and of the Aeronautical Society. And we of this paper have therefore had the more satisfaction in seeing how, under the able presidency of Col. Sempill the tendency of the Society to become a Mutual Admiration Society composed entirely of back-scratchers and log-rollers has become beautifully less.

Colonel Sempill's way of calling upon all and sundry to get up and express their views has brought to light new speakers, new critics, and new thinkers. And it has encouraged people to get up and speak without being called upon. Once in a while people who have joined in the discussions have actually had to be suppressed because of their vehemence or verbosity. And even on such occasions as these Colonel Sempill has shown exemplary patience and tact.

In another way Colonel Sempill has proved himself to be an exceptionally fine chairman. Though he was a very young Colonel in the Air Force at the end of the War he was already a trained engineer of outstanding ability, and he attained his rank by virtue of his technical achievements. And so no subjects have come up for discussion before the Society of which he has not had an intimate knowledge. Necessarily, he has not had the workshop and commercial experience of Mr. Fairey but his range of subjects is probably as wide, even if his knowledge of them in certain instances is theoretical rather than practical.

Colonel Sempill was first elected chairman in June 1926, and took office in October of that year. In June 1927 he was re-elected for the following year, 1927-28. But in January 1928 the Royal Aeronautical Society was amalgamated with the Institution of Aeronautical Engineers and a fresh election was held in January 1928, at which Col. Sempill was re-elected President. In June 1929 he was re-elected for the 1929-30 year of the Society.

His outstanding success during that long period of office will give everyone the hope that he will continue to take as lively an interest in the Society in the future as he has done in the past. And we all hope that on those occasions when Mr. Fairey cannot take the chair at the Society's meetings Colonel Sempill will do so. Furthermore, we all hope that with the time which Col. Sempill will not now be called upon to devote to the work of the Society he may make a still greater name and a great financial success in a still wider sphere of activity.—C. G. G.

THE AIR LEAGUE.

According to *The Times* the Duke of Sutherland presided at the annual general meeting of the Air League, held at Astor House on June 26, and was unanimously re-elected president. Among those elected or re-elected to the executive committee were:—Colonel the Master of Sempill, Brig.-Gen. Sir Charles Delmé Radcliffe, Lt.-Col. J. T. C. Moore-Brabazon, Lt.-Col. Ivan B. Davson, and Capt. H. H. Balfour, M.P. The Duchess of Bedford continues to hold the office of president of the Women's Committee, and Lady Bailey is chairman of that committee with Kathleen, Countess of Drogheda, as deputy chairman.

In his review of the year's work, the Duke of Sutherland alluded to the regretted resignation of Brig.-Gen Groves from the post of secretary-general, which position has been taken up by Lt. Col. N. G. Thwaites. Mention was made of the useful work done by the Lady Elibank and the Hon. Mrs. Forbes-Sempill in awakening interest in aviation among members of the ladies' clubs. He referred to the appeal made at the Air League Annual Dinner for an increase in support for the League, and said it was hoped to raise £5,000 to offer free flying scholarships.

A FIESTA AT TEDDINGTON.

On June 27 the National Physical Laboratory held its annual High Holiday, when the General Board made their Inspection. The personnel are fortunate in having the most amazing grounds at Teddington,—the laboratories and workshops are embowered in a kind of earthly paradise and at this time of year look particularly fine.

The visitors were received beneath the shadow of one of the larger wind tunnels by Sir Ernest Rutherford, O.M., who is President of the Royal Society and Chairman of the Board, by Sir Richard Glazebrook, K.C.B., F.R.S., who is Chairman of the Executive Committee, and by Sir Joseph E. Petavel, K.B.E., D.Sc., F.R.S., who is the director of the N.P.L.

All the departments of the laboratory were on show, but to aircraft people the Aerodynamics Department was of most immediate interest. The Wind Tunnels and the Whirling Arm were open to inspection and illustrated various phases of the general programme of aerodynamics research.

One exhibit was particularly interesting and always had a crowd in front of it. This was a piece of apparatus which made various types of fluid motion visible. Smoke from titanium tetra-chloride was made to flow through channels over varied surfaces and the shadow of the smoke was cast on a screen by a projector. This scheme certainly gives one a very good idea of the way in which the flow alters with the incidence over the surface of an aerofoil.

HIGH PRESSURE WIND-TUNNELS.

The following letter has been received from a more than usually competent authority:—

Sir,—I desire to refer to a statement made in THE AEROPLANE of June 25 (page 1202) to the effect that the variable density wind-tunnel of the National Advisory Committee for Aeronautics at Langley Field, Virginia, "burst and caught fire, but another one has since been built."

May I point out that the tunnel did not *burst*, the only damage to the steel shell being the loosening of a few rivets? The original internal structure of wood has been replaced in steel but its design has been somewhat changed.

In justice to the makers of the shell of the N.A.C.A. variable-density tunnel, I trust that you will give this letter the same prominence as the original statement.

(Signed) JOHN JAY IDE.
(Technical Assistant in Europe, National Advisory Committee for Aeronautics.)

[Perhaps one would have been more meticulously accurate if one had written "burst into flames." Anyhow, something went pop internally and consumed its innards, though without bursting the outer shell.—C. G. G.]

IMPORTANT DATES.

July 5.—King's Cup Air Race (Royal Aero Club—Hanworth).
July 8.—Polo match for the Duke of York's Cup, at Ranelagh. R.N. v. R.A.F.
July 9—12.—R.A.F. Athletic Championships at Uxbridge.
July 13.—N.F.S. Meeting at Leeds.
July 19.—Hanworth Garden Party.
July 20—Aug. 7.—International Touring Competition, starting from Berlin.
July 26.—Norwich Flying Meeting (Norfolk and Norwich Aero Club) (with R.A.F. support).
Sept. 1—6.—International Congress on Air Navigation at The Hague.
Sept. 6.—Official opening of Mr. Lindsav Everard's private aerodrome at Ratcliffe, Leicester.
Sept. 6.—Bristol Air Garden Party to the British Association.
Sept. 6—28.—International Aero Exhibition at Stockholm.
Sept. 20.—Liverpool Air Pageant (Liverpool and District Aero Club and Lancashire Aero Club) (with R.A.F. support).
Sept. 27.—Air Pageant at Hanworth.
Nov. 28—Dec. 14.—International Aero Exhibition at Paris.

THE KING'S CUP RACE.

Supplementary Regulations.

Additional Turning Point.—In the interests of safety it has been decided to make an additional Turning Point between Sherburn-in-Elmet and Newcastle (Cramlington). This Turning Point is at Ponteland, 6 miles S.W. of Cramlington Aerodrome.

The Turning Point will be a White Cross in the field adjoining Ponteland Railway Station on the N.W. side. Approaching Ponteland from Sherburn-in-Elmet competitors must pass the White Cross, leaving it on their Right.

Verification of Aircraft.—In view of the large number of aircraft to be examined, competitors are notified that the examining officials will be at Hanworth on Thursday, July 3, 1930, from 12 noon, and it is hoped that where convenient competitors will present their aircraft on that date.

Woodford Aerodrome.

All pilots, and especially King's Cup Competitors, should know that Woodford Aerodrome is now marked by a white circle with the word AVRO in white letters inside the circle. This circle, together with the red tennis court in front of the Clubhouse, show up very clearly from the air and will be found of assistance in locating the aerodrome from a distance. The cross and tent marking the turning point will be on the westerly side of the circle and close to it.

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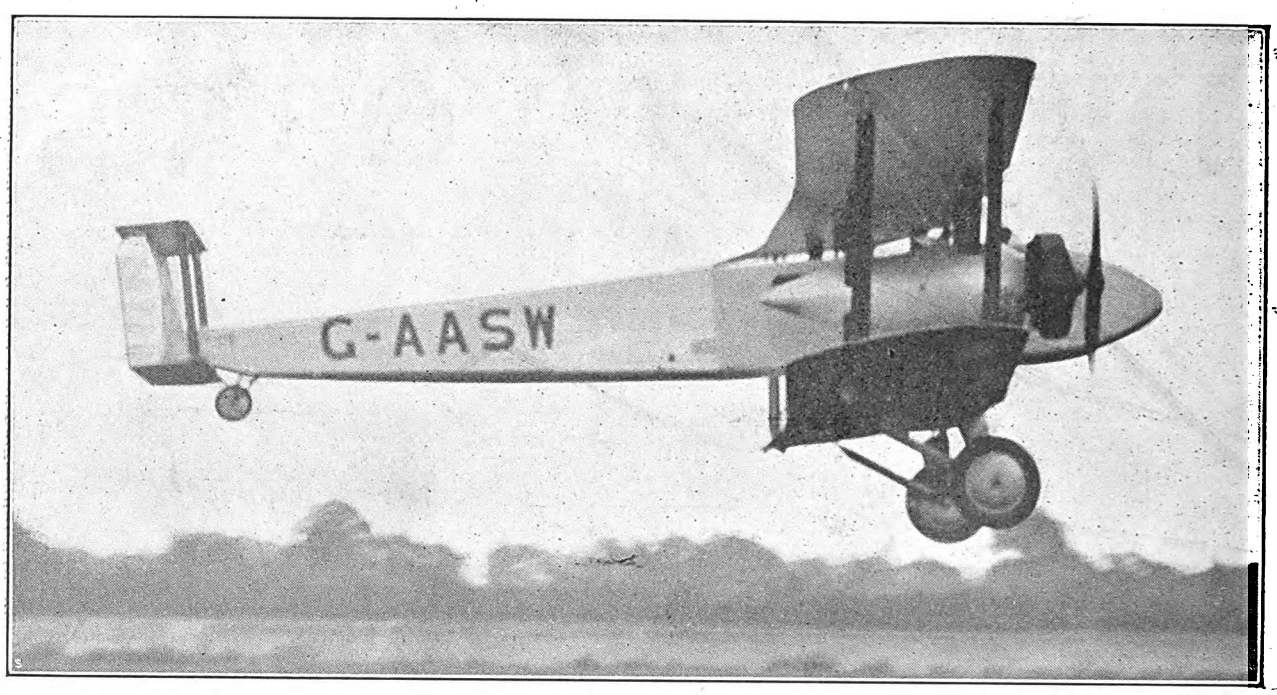
THE KING'S CUP RACE.



THE VICKERS VELLORE.—The latest Vellore freight carrier (two Bristol Jupiter XI engines), which will start from scratch in the King's Cup Race.

The race for the Cup graciously presented by H.M. the King will be flown on Saturday, July 5. It will start from and finish at Hanworth.

A total of 101 entries has been received, but there is little likelihood that all the hundred odd will be definite starters.

The first machine is due to leave Hanworth at 07.00 hrs. and the remaining starters will be taking off according to their handicap times up till about midday.

The competitors will fly over a 749½ mile course by way of Hamble (Southampton), Bristol, Castle Bromwich (Birmingham), Hooton Park (Liverpool), Woodford (Manchester), Sherburn (Leeds), Cramlington (Newcastle), Hedon (Hull), Desford (Leicester), and back to Hanworth.

The first machine is expected to finish at about 17.00 hrs.

An analysis of the entries shows that there are twenty-one different types of competing aircraft. Hereafter follow short notes concerning each of the various types entered, together with their racing numbers. A full list of entries giving their registration lettering, name of entrant and pilot and other particulars follows hereafter.

THE AEROPLANES IN THE RACE.

D.H. MOTH.—Racing numbers: 1, 2, 3, 6, 7, 8, 12, 13, 15, 16, 23, 34, 35, 38, 39, 44, 46, 49, 51, 52, 53, 54, 56, 58, 60, 66, 72, 73, 75, 76, 78, 81, 87, 88, 92, 94, 99, 100, 101.

The Moth is well enough known to make any form of introduction superfluous. Readers of D.H. advertisements have been urged, when looking at an aeroplane in the air, to say "It's a Moth." To do this indiscriminately would be unwise, but with the high percentage of Moths in the race the odds on being right are somewhat high.

Moths in the race will be fitted with a variety of engines which will include the Cirrus Mks. I, II and III, and the Gipsy I and II, but the types of engines do not alter the general appearance of the type to any noticeable degree. Actually the cowling of the Cirrus and Gipsy engines is different. In the Gipsy this cowling runs forward into a spinner on the airscrew boss, whereas the Cirrus cowling ends behind the airscrew. The coupé top on one or two machines is a noticeable feature.

D.H. PUSS-MOTH.—Racing numbers: 9, 11, 20, 26, 45, 77, 79, 80, 86.

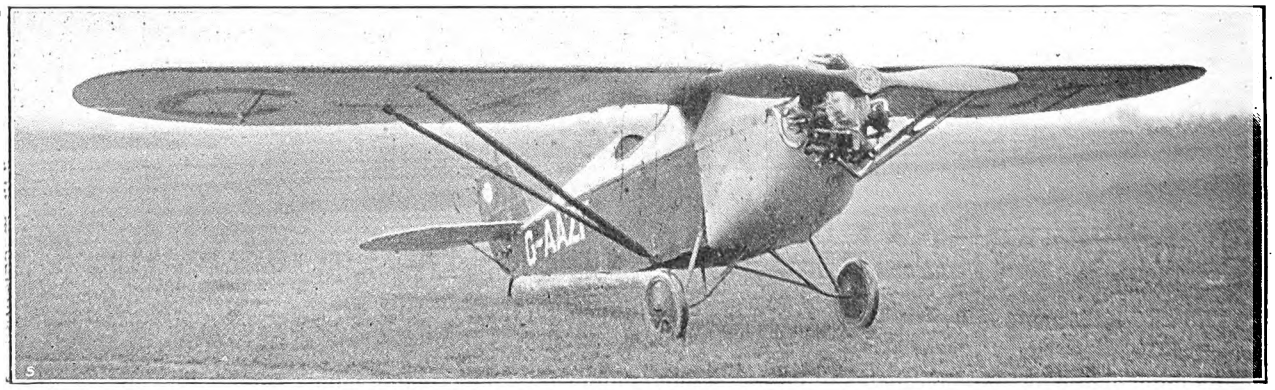
The Puss-Moth is the most recent product of the D.H. Company and is a small braced high-wing two/three-seat cabin monoplane with the inverted Gipsy III engine. This machine has a characteristic D.H. tail, a wide, squat divided undercarriage, Vee-type wing-bracing struts from the bottom of the fuselage to the monoplane wings, which rest on top of the fuselage, and a deep, narrow nose enclosing the inverted engine, with the airscrew boss finished with a spinner, high up. Its most noticeable feature is the curious dip of the roots of the wings to the top of the fuselage.

D.H. HAWK-MOTH.—Racing number 74.

The Hawk-Moth is a four/six-seat braced high-wing cabin-monoplane of an external outline similar to the Puss-Moth, but it is much larger. It has a higher undercarriage, parallel wing bracing struts and a radial air-cooled Armstrong Siddeley Lynx VI engine. This last-mentioned feature should make it distinctive.

AVRO AVIAN.—Racing numbers: 5, 41, 55, 59, 82, 83, 85, 91.

The Avian is almost as familiar to the air-minded as the Moth and in general appearance it differs little from that type. Avians in the race will be fitted with Cirrus Mk. I and II, Cirrus-Hermes and Armstrong Siddeley Genet-Major engines. For the in-line air-cooled engines the cowling finishes off with an airscrew spinner. The radial Genet



THE POBJOY-ENGINED SWIFT.—The Comper Swift with the Pobjoy radial engine. This machine is the first production Swift and has an extremely fine performance. In its final form the engine is cowled with a species of N.A.C.A. cowling.

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THE LATEST MARTLET.—The Southern Martlet single-seat light biplane with the D.H. Gipsy II engine. Another Martlet with an Armstrong Siddeley Genet engine has also been entered for the King's Cup Race.

should be conspicuous. As compared with the Moth, the Avian undercarriage has the compression leg running up to the top fuselage longeron instead of the bottom, and the half-axles are hinged to the centre-line of the fuselage instead of to a steel tube Vee under the fuselage. The lines throughout the Avian are straighter than those of the Moth. For instance, the wings, tail-plane and elevator are rectangular with rounded corners and the fin is triangular.

AVIAN MONOPLANE.—Racing numbers: 69, 84.

The Avian monoplane is a completely new product of the Avro Company and except for the rear half of the fuselage and the tail plane it has no outward resemblance to the Avian biplane. It is a low-wing monoplane with wire bracing running from the top fuselage longerons to the top surface of the wings, and from the bottom surface of the wings to two rigid steel Vees, under the fuselage, which form part of the undercarriage. The undercarriage is completed by an axle and two compression-legs, the bottom ends of which are hinged by radius-rods to the apices of the aforementioned Vees. The wings and tail-plane are rectangular with rounded corners. The wings are of semi-thick section and are rigged with a slight dihedral angle. One of the two machines will have a Cirrus-Hermes and the other an Armstrong Siddeley Genet-Major engine.

AVRO TRAINER.—Racing number: 70.

The Avro Trainer is in essence an enlarged Avian with the Armstrong Siddeley Mongoose III.A radial engine. It has staggered single-bay wings with "N" type interplane struts, a wider centre-section with splayed-out centre-section struts and a rounded fuselage. The extremities of the wings and tail-plane are square with rounded corners. The undercarriage and tail unit are similar to those on the Avian.

AVRO-FIVE.—Racing number: 71.

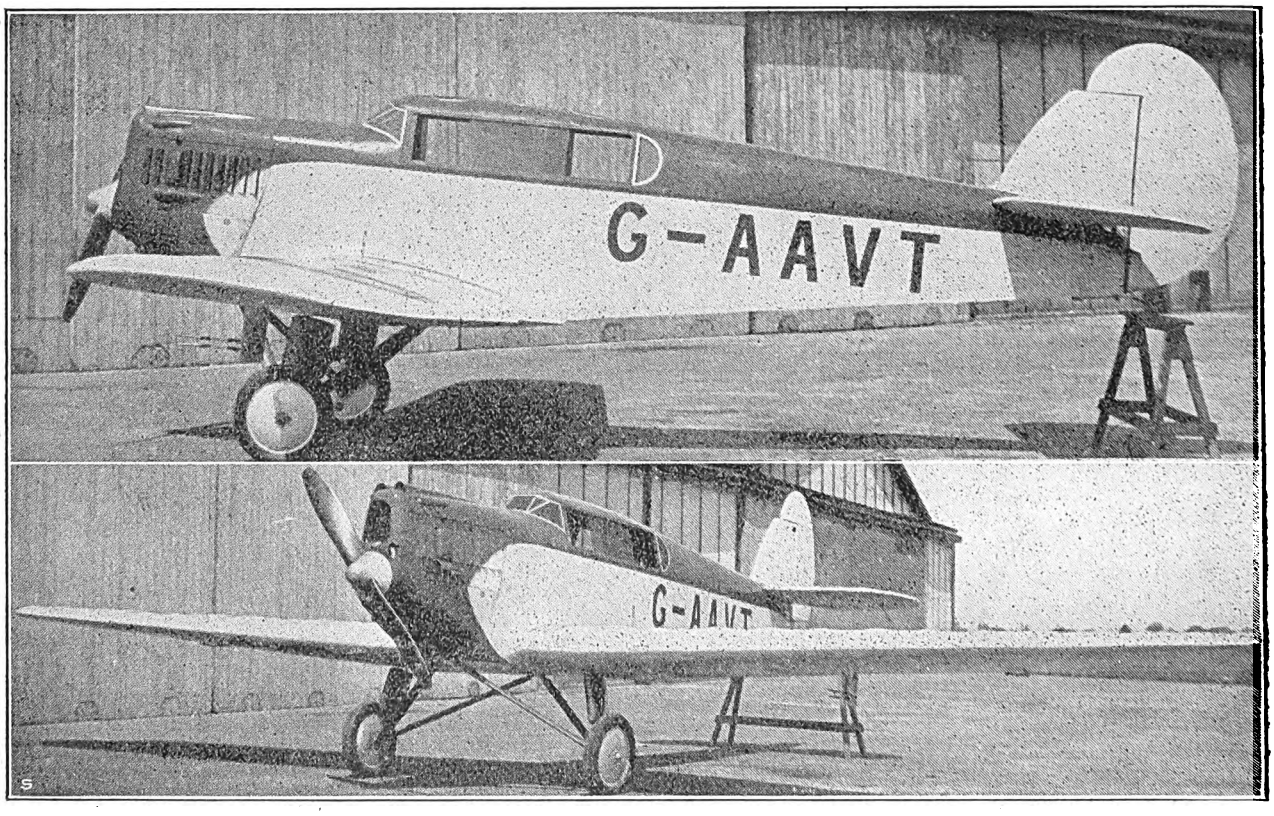
The Avro Five is a small three-engined commercial monoplane of characteristic Fokker appearance. It has a monoplane wing which tapers in chord and thickness from the tips to the fuselage, and as the only three-engined aircraft in the race it should be easily recognisable by this feature alone. The three Genet-Major engines are mounted one on the nose and one on each side of the fuselage and under the wing.

BLACKBURN BLUEBIRD.—Racing numbers: 21, 22, 27, 26, 29, 30, 31, 32, 47, 64, 89, 90, 93, 96.

The Bluebird is another well-known type of light aeroplane. Its characteristic is its side-by-side seating which necessitates a wide fuselage. This makes the machine easily recognisable in the air. Bluebirds in the race will have either the Cirrus-Hermes or the D.H. Gipsy I or II engine.

WESTLAND WIDGEON.—Racing numbers: 18, 37, 67.

The Widgeon is a parasol monoplane and the three machines entered have been familiar visitors at most light aeroplane meetings during the past two years. One will have a D.H. Gipsy, one a Cirrus-Hermes and the third an Armstrong-Siddeley Genet III engine.



THE LATEST CABIN MONOPLANE.—Side and three-quarter front views of the Hendy 302 two-seat cabin monoplane (Cirrus Hermes engine) which will be flown in the race by Mr. E. W. Percival.

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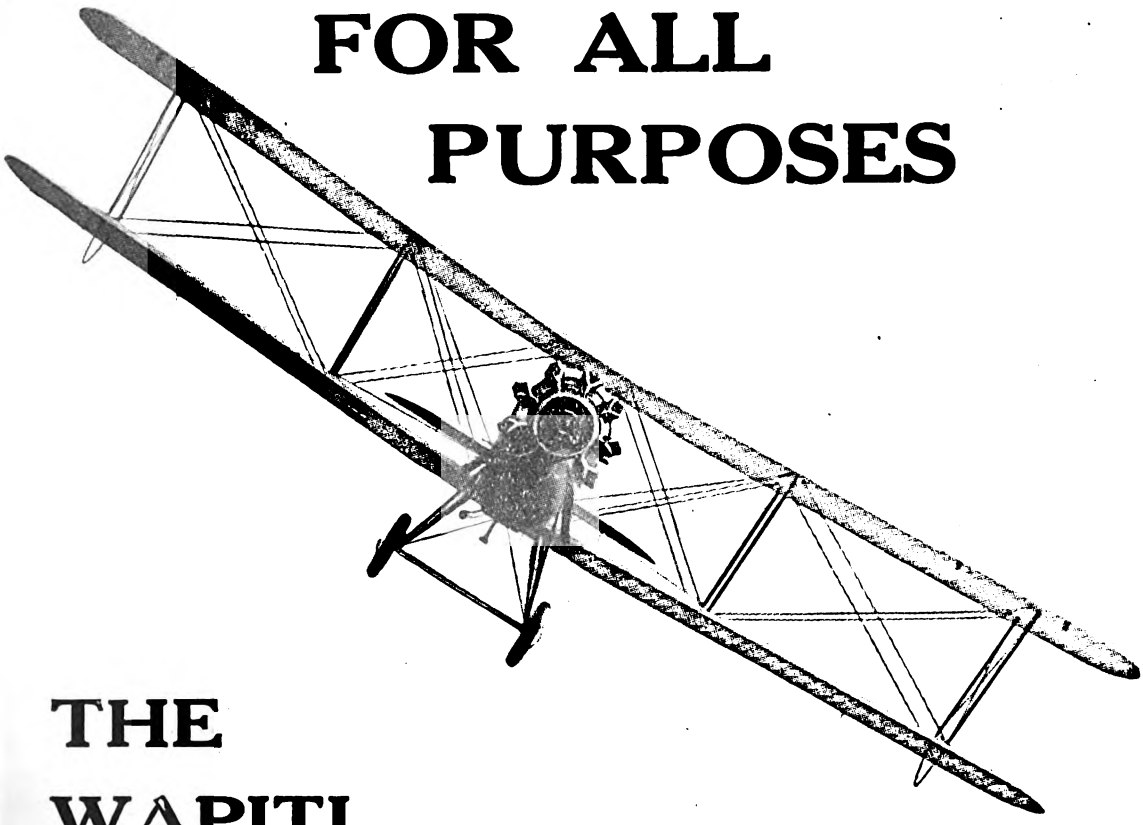
WESTLAND AIRCRAFT FOR ALL PURPOSES



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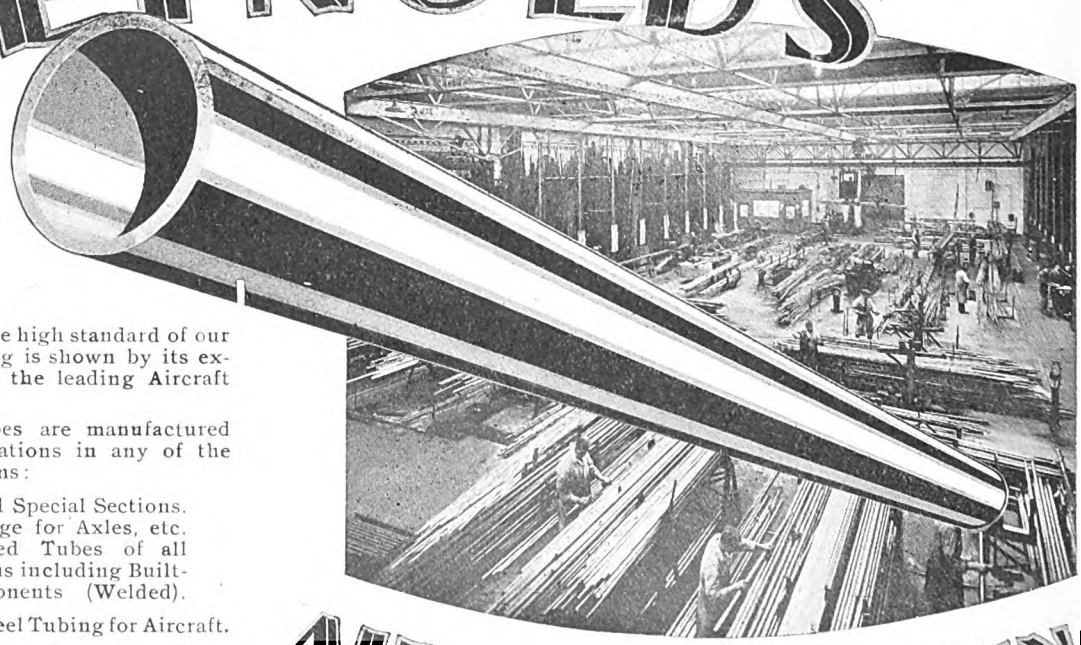

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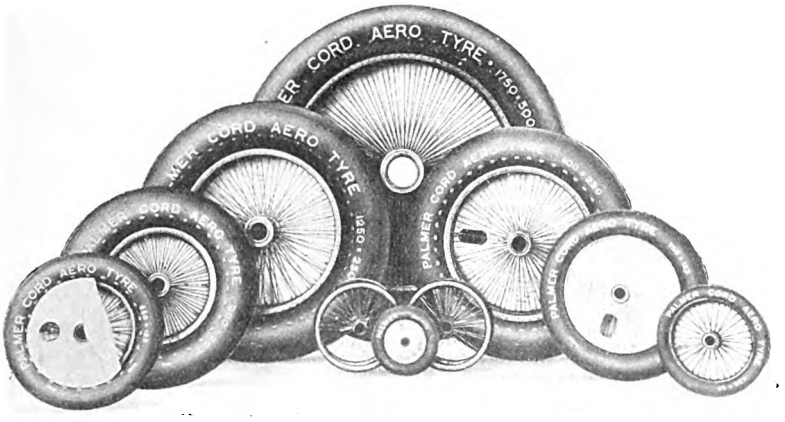

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Bristol Aeroplane Co., Limited.
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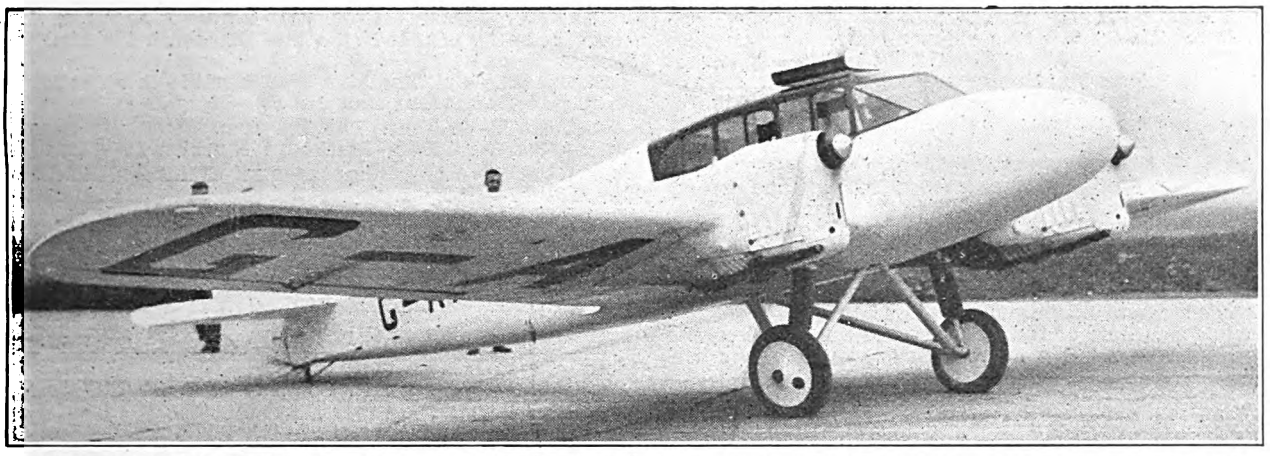


THE SEGRAVE METEOR.—A three-quarter front view of the Meteor (two D.H. Gipsy III inverted engines) which will be flown by Flt. Lt. R. L. R. Atcherley and navigated by Flt. Lt. G. A. Stainforth, R.A.F.

HAWKER TOMTIT.—Racing numbers: 33, 57.

The Tomtit is a medium-light training biplane with the Armstrong Siddeley Mongoose III.A radial engine. It has heavily staggered single-bay wings, with N-type interplane struts and a slight sweep back. The Tomtit is in the same class as the Avro Trainer, but it can be distinguished from that machine by the back-swept wings and a cross-axle undercarriage instead of one of the divided type.

ROBINSON REDWING.—Racing number: 50.

The Redwing is a new two-seat side-by-side light biplane and will be distinguishable from the Bluebird side-by-side biplane by the comparatively short nose, which houses an A.B.C. Hornet "flat" four-cylinder engine. The undercarriage of the Redwing is similar to that of the Bluebird except that the radius members of the side Vees slope forward instead of aft.

DESOUTTER SPORTS COUPE.—Racing numbers: 42, 61, 68.

The Desoutter Sports Coupé is a high-wing cabin monoplane and of the three machines in the race two will have the Cirrus-Hermes upright and the other the D.H. Gipsy III inverted engine. This type of machine has a cantilever monoplane wing which tapers slightly in chord and thickness, and a very wide undercarriage, the main compression members of which run vertically up to the front spar of the wing. In both these respects it differs from the D.H. Puss-Moth, which is the only other machine in the race with which it might be confused when seen in the air. The four-cylinder-in-line engine is completely cowled in and the position of the airscrew boss on the nose will indicate whether it has the upright or inverted engine.

SEGRAVE METEOR.—Racing number: 10.

The Meteor is a twin-engined low-wing monoplane of very distinctive appearance. It has a tapering cantilever monoplane wing into the leading-edge of which are mounted the two inverted and completely encowled Gipsy engines. The fuselage is of circular section and has a round nose which swells upwards in front of the wing to provide enclosed cabin accommodation for the crew. From the cabin the top line of the fuselage runs straight to the tail, which is of a normal monoplane type.

COMPER SWIFT.—Racing numbers: 4, 10.

The Swift is a small single-seat high-wing braced monoplane. Of the two machines in the race one will have the A.B.C. Scorpion two-cylinder "flat-twin" and the other the Pobjoy seven-cylinder radial engine. The characteristics of this machine are the long, round nose, the comparatively deep fuselage when seen from the side, and the monoplane wing,—which is braced to the bottom fuselage longerons by Vee type struts. The open pilot's seat is aft of the wing and the trailing edge is cut away on either side of the cockpit.

SOUTHERN MARTLET.—Racing numbers: 65, 98.

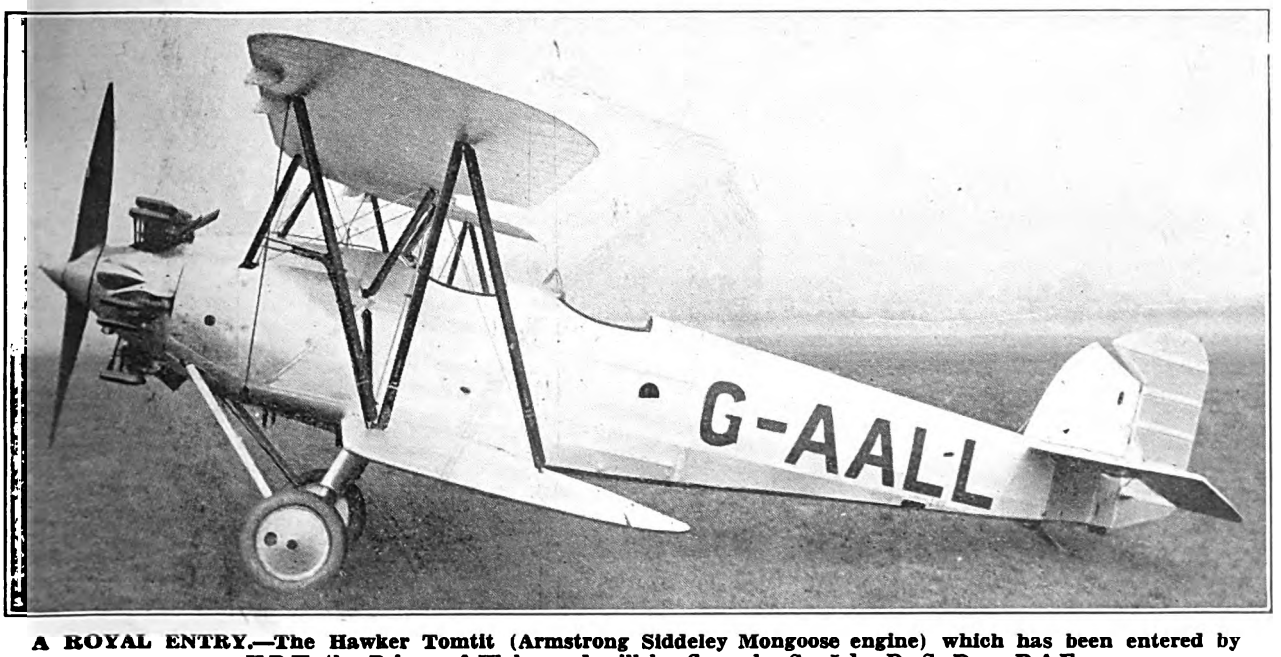
The Martlet is a small single-seat biplane of rather stumpy appearance. Two machines have been entered, one with a Gipsy II and the other with an Armstrong Siddeley Genet engine. It has single-bay staggered wings, a cross axle undercarriage, tapering ailerons and an Avian type fin and rudder. The general appearance may be gathered from the photograph at the top of page 62.

PARNALL ELF.—Racing number: 97.

The Elf is a two-seat light biplane with the Hermes engine. This type will be easily distinguishable by its Warren-girder wing-bracing (which, when viewed from the front, is in the form of a lattice), by its back-swept wings and its deep fuselage.

VICKERS VELLORE-TWIN.—Racing number: 43.

The Vellore-Twin is the only large aircraft competing in the race. It is a twin-engined version of the machine in which Messrs. Moir and Owen flew from England to Australia last year. It will be easily recognisable by its size and by the fact that the fuselage is placed high up between the wings,—that is, there is gap both above and below between the fuselage and the top and bottom wings, and also by its two Bristol Jupiter radial engines, which are placed one on each side of the fuselage and between the wings. This type also has a biplane elevator without a fixed tail, a feature which will be peculiar to itself in the race.



A ROYAL ENTRY.—The Hawker Tomtit (Armstrong Siddeley Mongoose engine) which has been entered by H.R.H. the Prince of Wales and will be flown by Sq. Ldr. D. S. Don, R.A.F.

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A.B.C. ROBIN.—Racing number: 95.

The Robin is a small single-seat cabin monoplane with the A.B.C. Scorpion two-cylinder "flat-twin" engine. It has a rectangular fuselage which tapers rather sharply from the cabin to the tail, and the wings rest on top of the fuselage and are braced to the bottom of the fuselage by Vee type struts.

SPARTAN.—Racing numbers: 17, 24, 25, 40.

The Spartan is a two- or three-seat light biplane of conventional appearance. Machines in the race will have either the Cirrus III, Gipsy II or Hermes engines and all will be of similar appearance with the exception of minor cowling differences. No. 25 will be a three-seat model and in this machine the front cockpit is big enough to hold two. The most outstanding features are the balanced rudder and elevators of the tail unit and the travel on the compression legs of the undercarriage, which allows the wheels to drop until they look distinctly bow-legged.

SPARTAN ARROW.—Racing numbers: 14, 19, 48.

The Spartan Arrow is the latest version of the Spartan. It differs little from that type in general outward appearance. Actually it does not incorporate the interchangeability of the original Spartan and the new wing has the Clark "Y" section. The three Spartan Arrows will have the Gipsy I, Gipsy II and Hermes engines respectively.

The Spartan and Spartan Arrow differ from the other tandem two-seat light biplanes of the Moth and Avian type in that the radius members of the side Vees of the undercarriage slope aft instead of forward and they also have all control surfaces balanced.

HENDY 302.—Racing number: 63.

The Hendy 302 has been designed by Mr. Henderson, who designed the Hendy Hobo, and was built at the Works of George Parnall and Co. at Bristol. It is a two-seat low-wing cabin monoplane with the Cirrus-Hermes engine and its general appearance will be gathered from the photographs which appear on page 62.

THE ENTRANTS.

1. G-AARU—F. S. Symondson—F. S. Symondson—D.H. Moth—Gipsy I.
2. G-EBYV—I. R. Parker—I. R. Parker—D.H. Moth—Cirrus II.
3. G-EBYZ—A. G. G. Marshall—A. G. G. Marshall—D.H. Moth—Gipsy I.
4. G-AAZF—Gerard Fane—Gerard Fane—Comper Swift—Pobjoy.
5. G-EBWU—Lieut. Caspar John, R.N., Lieut. Caspar John, R.N.—Avro Avian—Cirrus II.
6. G-AAWU—Arthur Stanley Preist—E. Fulford—D.H. Moth—Gipsy I.
7. G-AAEW—Derek Schreiber—Derek Schreiber—D.H. Moth—Gipsy I.
8. G-EBQW—J. B. Buckley—J. B. Buckley—D.H. Moth—Cirrus III.
9. G-AAXW—Roy Faulkner—C. D. Barnard—D.H. Puss-Moth—Gipsy III.
10. G-AAXP—Andrew F. Holt—Flt. Lt. R. L. R. Atcherley—Segrave-Meteor—Two Gipsy III.
11. G-AAYD—W. L. Hope—W. L. Hope—D.H. Puss-Moth—Gipsy III.
12. G-AAGA—Lieut.-Col. A. Hamilton Gault—Lieut.-Col. A. Hamilton Gault—D.H. Moth—Gipsy I.
13. G-AABO—T. H. Naylor—T. H. Naylor—D.H. Moth—Gipsy I.
14. G-AAWZ—W. A. Andrews—W. A. Andrews—Spartan Arrow—Gipsy I.
15. G-EBVD—A. G. Vlasto—George Vlasto—D.H. Moth—Cirrus I.
16. G-EBOT—D. M. K. Marendaz—W. H. Sutcliffe—D.H. Moth—Cirrus I.
17. G-AAGN—John de C. Ballardie—Lieut.-Col. L. A. Strange—Spartan—Cirrus III.
18. G-AADE—C. S. Napier—C. S. Napier—Westland Widgeon—Gipsy I.
19. G-ABBE—H. H. Blafour—H. H. Balfour—Spartan Arrow—Gipsy II.
20. G-AAFA—M. H. Findlay—M. H. Findlay—D.H. Puss-Moth—Gipsy III. —
21. G-AACC—Norman Blackburn—Flt. Lt. T. Rose—Blackburn Bluebird IV—Hermes.
22. G-AABV—Norman Blackburn—Norman Blackburn—Blackburn Bluebird IV—Gipsy I.
23. G-AAEE—The Hon. Lady Bailey—The Hon Lady Bailey, D.B.E.—D.H. Moth—Gipsy I.
24. G-AAGO—A. E. Chambers—H. T. Andrews—Spartan—Gipsy II.
25. G-ABAZ—Sq. Ldr. H. W. Woollett—J. F. X. McKenna—Spartan 3-seater—Hermes.
26. G-ABBH—Lord Wakefield of Hythe—H. S. Broad—D.H. Puss-Moth—Gipsy III.
27. G-AATO—Mrs. Norman E. Holden—Flt. Lt. G. G. H. Du Boulay—Blackburn Bluebird IV—Gipsy I.
28. G-AAVG—Marshal of the Royal Air Force, Lord Trenchard—Sq. Ldr. L. H. Slatter—Blackburn Bluebird IV—Hermes.
29. G-AAIR—Col. The Master of Sempill—Col. The Master of Sempill—Blackburn Bluebird IV—Gipsy I.
30. G-AAOI—Sq. Ldr. The Rt. Hon. Sir Philip Sassoon, Bart.—John W. Gillan—Blackburn Bluebird IV—Hermes.
31. G-AAUV—Loel Guinness—Loel Guinness—Blackburn Bluebird IV—Gipsy I.
32. G-AATN—Robert McAlpine—Flt. Lt. H. R. D. Waghorn—Blackburn Bluebird IV—Gipsy I.
33. G-AALL—H.R.H. The Prince of Wales—Sq. Ldr. D. S. Don—Hawker Tomtit—Mongoose III.A.
34. G-ABAM—Richard R. W. R. Trafford—Richard R. W. R. Trafford—D.H. Moth—Gipsy I.
35. G-EBWT—W. L. Runciman—W. L. Runciman—D.H. Moth—Cirrus III.
36. G-AARX—Flt. Lt. N. Comper—L. S. Snaith—Comper Swift—Scorpion II.
37. G-EBRQ—"J. Wellworth"—"J. Wellworth"—Westland Widgeon III—Genet III.
38. G-EBQH—F. A. I. Muntz—F. A. I. Muntz—D.H. Moth—Gipsy I.
39. G-AAEF—A. B. Ferguson—A. B. Ferguson—D.H. Moth—Gipsy I.
40. G-AAMG—Flt. Lt. F. G. Gibbons—Flt. Lt. F. G. Gibbons—Spartan—Hermes.
41. G-AAHJ—F. W. Ewart Morgan—S. A. Thorn—Avro Avian—Hermes.
42. G-AATK—A. M. Desoutter—A. B. H. Youell—Desoutter I—Hermes.
43. G-AASW—Sir Robert McLean—J. Summers—Vickers Vellore—Two Jupiter XI.
44. G-AAHP—W. L. Hope—R. O. I. Muntz—D.H. Moth—Gipsy II.
45. G-AAXT—Norman E. Holden—E. G. Hordern—D.H. Puss-Moth—Gipsy III.
46. G-AAYY—J. W. P. Chalmers—J. W. P. Chalmers—D.H. Moth—Gipsy II.
47. G-AAUW—Mrs. Robert Blackburn—Flt. Lt. H. V. Rowley—Blackburn Bluebird IV—Gipsy I.
48. G-AAWY—Flt. Lt. J. R. Addams—Flt. Lt. J. R. Addams—Spartan Arrow—Hermes.
49. G-ABAE—Mrs. C. M. Young—Mrs. C. M. Young—D.H. Moth—Gipsy I.
50. G-AAUO—P. G. Robinson—Flt. Lt. J. F. T. Barrett—Robinson Redwing—Hornet.
51. G-AAWR—Maj. C. M. Pickthorn—Maj. C. M. Pickthorn—D.H. Moth—Gipsy I.
52. G-AAKI—Richard Ince—Richard Ince—D.H. Moth—Gipsy I.
53. G-ABBA—Lord Wavertree—Flt. Lt. J. B. Allen—D.H. Moth—Gipsy I.
54. G-EBOI—P. A. Wills—P. A. Wills—Moth—Cirrus II
55. G-EBVZ—Miss Winifred S. Brown—Miss Winifred S. Brown—Avro Avian—Cirrus III.
56. G-AALK—Sq. Ldr. The Rt. Hon. F. E. Guest—H. H. Leech—D.H. Moth—Gipsy I.
57. G-ABAX—Sq. Ldr. The Rt. Hon. F. E. Guest—Sq. Ldr. The Rt. Hon. F. E. Guest—Hawker Tomtit—Mongoose III.A.
58. G-AADA—John D. Irving—John D. Irving—D.H. Moth—Gipsy I.
59. G-EBQN—P. N. G. Peters—Flt. Lt. T. B. Bruce—Avro Avian—Cirrrus III.
60. G-AAEL—Flt. Lt. D. V. Carnegie—Flt. Lt. D. V. Carnegie—D.H. Moth—Gipsy I.
61. G-AAPY—C. B. Wilson—P. E. G. Sayer—Desoutter I—Hermes.
62. —A. C. Thornton—Flt. Lt. J. S. Chick—Arrow Active—Hermes—(Non-starter, machine not ready).
63. G—AAVT—Mrs. D. Lawley-Gibbs—Edgar W. Percival—Hendy 302—Hermes.
64. G-AATS—H. J. Andrews—H. J. Andrews—Blackburn Bluebird IV—Gipsy I.
65. G-AAYZ—Sq. Ldr. The Rt. Hon. F. E. Guest—Miss Winifred E. Spooner—Martlet—Gipsy II.
66. G-EBPQ—Lieut. L. G. Richardson, R.N.—Lieut. L. G. Richardson, R.N.—D.H. Moth—Cirrus III.
67. G-EBRM—R. G. Cazalet—R. G. Cazalet—Westland Widgeon III—Hermes.
68. G-AAZI—Rt. Hon. Lord Rothermere—C. B. Wilson—Desoutter II—Gipsy III.
69. G-AAYW—Frank Hough—T. N. Stack—Avro Avian monoplane—Hermes.
70. G-AAKT—Roy Chadwick—Flt. Lt. J. L. N. Bennett-Baggs—Avro Trainer—Mongoose III.A.
71. G-AASO—Sq. Ldr. The Rt. Hon. Sir Philip Sassoon, Bt.—Flt. Lt. S. L. G. Pope—Avro V—Three Genet-Majors.
72. G-EBZZ—Capt. R. S. Rattray—Capt. R. S. Rattray—D.H. Moth—Cirrus II.
73. G-AAYG—Sq. Ldr. H. A. Whistler—Sq. Ldr. H. A. Whistler—D.H. Moth—Gipsy II.

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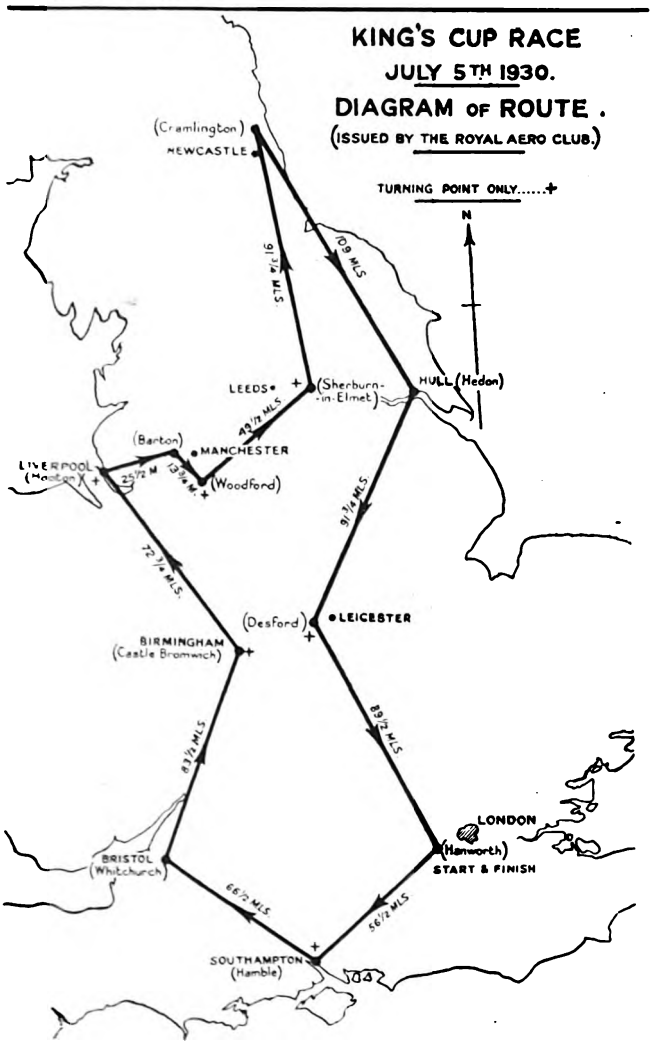
74. G-AAUZ—H.R.H. The Prince George—Flt. Lt. E. H. Fielden—D.H. Hawk-Moth—Lynx VI.
75. G-AASL—G. de Havilland, Jr.—G. de Havilland, Jr.—D.H. Moth—Gipsy II.
76. G-AAXG—Mrs. A. S. Butler—Mrs. A. S. Butler—D.H. Moth—Gipsy II.
77. G-AAXL—A. S. Butler—A. S. Butler—D.H. Puss-Moth—Gipsy III.
78. G-ABAI—Capt. R. Douglas—Capt. R. Douglas—D.H. Moth—Gipsy I.
79. G-AAXO—Capt. G. de Havilland—Capt. G. de Havilland—D.H. Puss-Moth—Gipsy III.
80. G-AAXZ—Lieut.-Cdr. Glen Kidston, R.N.—Lieut.-Cdr. Glen Kidston, R.N.—D.H. Puss-Moth—Gipsy III.
81. G-AALJ—Albert A. Nathan—Albert A. Nathan—D.H. Moth—Gipsy I.
82. G-AACV—Geoffrey Goodwin—Geoffrey Goodwin—Avro Avian—Hermes.
83. G-AABS—R. H. Dobson—D. S. Green—Avro Avian—Genet Major I.
84. G-AAYV—J. D. Siddeley—F. Tomkins—Avro Avian monoplane—Genet Major I.
85. G-AAYU—A. J. A. Wallace Barr—J. C. Cantrill—Avro Avian Sports—Hermes.
86. G-AAZP—Miss D. C. Guest—Miss D. C. Guest—D.H. Puss-Moth—Gipsy III.
87. G-AAJS—I. C. Maxwell—I. C. Maxwell—D.H. Moth—Gipsy I.
88. G-AAJO—G. P. Fairbairn—G. P. Fairbairn—D.H. Moth—Gipsy I.
89. G-AAUU—Harold Peake—Sq. Ldr. A. H. Orlebar—Blackburn Bluebird IV—Gipsy I.
90. G-AASV—Eric L. Gandar-Dower—C. L. Pashley—Blackburn Bluebird IV—Gipsy I.
91. G-AAWI—Lady Wakefield—Flt. Lt. John Oliver—Avro Avian Sports—Hermes.
92. G-AADX—A. C. M. Jackaman—A. C. M. Jackaman—D.H. Moth—Gipsy I.
93. G-AAYF—Wm. E. Rootes—Sq. Ldr. J. W. Woodhouse—Blackburn Bluebird IV—Gipsy II.
94. G-AAHI—H. N. St. V. Norman—H. N. St. V. Norman—D.H. Moth—Gipsy I.
95. G-AAID—H. A. G. Howard—A. L. Mortimer—A.B.C. Robin—Scorpion II.



96. G-AAOB—Lord Malcolm Douglas-Hamilton—Lord Malcolm Douglas-Hamilton—Bluebird IV—Cirrus III.
97. G-AAFH—George G. Parnall—H. A. Presto—Parnall Elf—Hermes.
98. G-AAVD—Walter R. Westhead—Walter R. Westhead—Southern Martlet—Genet II.
99. G-AAGI—Miss F. M. Wood—Miss F. M. Wood—D.H. Moth—Gipsy I.
100. G-EBXG—M. D. L. Scott—M. D. L. Scott—D.H. Moth—Cirrus II.
101. G-AASG—O. F. Maclaren—G. A. Pennington—D.H. Moth—Gipsy I.

THE ORDER OF STARTING.

The following is the order of starting in the King's Cup Race:—The first number is the racing number of each machine as shown in the full list, in which the machines appear in order of their racing numbers. Thereafter appears the registration lettering, followed by the handicap, and the time of starting:—

16,	G-EBOT.	3.41.17—7.00.00	94,	G-AAHI.	1.43.39—8.57.38
15,	G-EBVD.	3.21.49—7.19.28	51,	G-AAWR.	1.43.39—8.57.38
50,	G-AAUO.	3.06.38—7.34.39	37,	G-EBRQ.	1.42.36—8.58.41
95,	G-AAID.	3,03.42—7.37.35	18,	G-AADE.	1.40.33—9.00.44
5,	G-EBWU.	2.46.46—7.54.31	78,	G-ABAI.	1.38.30—9.02.47
54,	G-EBOI.	2.44.03—7.57.14	87,	G-AAJS.	1.38.30—9.02.47
96,	G-AAOB.	2.41.22—7.59.55	92,	G-AADX.	1.37.30—9.03.47
36,	G-AARX.	2.28.22—8.12.55	53,	G-ABBA.	1.36.29—9.04.48
22,	G-AABV.	2.27.07—8.13.40*	82,	G-AACV.	1.36.29—9.04.48
64,	G-AATS.	2.27.07—8.13.40*	21,	G-AACC.	1.35.29—9.05.48
90,	G-AASV.	2.27.07—8.14.10	99,	G-AAGI.	1.33.29—9.07.48
100,	G-EBXG.	2.27.07—8.14.10	98,	G-AAVD.	1.32.30—9.08.47
27,	G-AATO.	2.25.51—8.14.56*	61,	G-AAPY.	1.30.32—9.10.45
29,	G-AAIR.	2.25.51—8.14.56*	19,	G-ABBE.	1.30.32—9.10.45
31,	G-AAUV.	2.25.51—8.15.26	23,	G-AAEE.	1.28.35—9.12.12*
32,	G-AATN.	2.25.51—8.15.26	42,	G-AATK.	1.28.35—9.12.42
47,	G-AAUW.	2.25.51—8.15.56**	71,	G-AASO.	1.28.35—9.12.42
89,	G-AAUU.	2.25.51—8.15.56**	67,	G-EBRM.	1.23.48—9.17.29
55,	G-EBVZ.	2.25.51—8.16.26***	73,	G-AAYG.	1.21.55—9.19.22
2,	G-EBYV.	2.23.22—8.17.55	46,	G-AAYY.	1.21.55—9.19.22
8,	G-EBQW.	2.23.22—8.17.55	70,	G-AAKT.	1.20.59—9.20.18
17,	G-AAGN.	2.16.03—8.25.14	75,	G-AASL.	1.17.17—9.24.00
28,	G-AAVG.	2.06.38—8.34.39	4,	G-AAZF.	1.17.17—9.24.00
30,	G-AAOI.	2.06.38—8.34.39	24,	G-AAGO.	1.08.19—9.32.58
72,	G-EBZZ.	2.05.29—8.35.48	58,	G-AADA.	1.06.34—9.34.43
25,	G-ABAZ.	2.04.20—8.36.57	38,	G-EBQH.	0.59.44—9.41.33
34,	G-ABAM.	1.59.49—8.41.28	68,	G-AAZI	0.53.08—9.48.09
39,	G-AAEF.	1.58.42—8.42.35	85,	G-AAYU.	0.51.31—9.49.46
49,	G-ABAE.	1.58.42—8.42.35	91,	G-AAWI.	0.48.19—9.52.58
66,	G-EBPQ.	1.57.36—8.43.11*	76,	G-AAXG.	0.46.45—9.54.32
52,	G-AAKI.	1.57.36—8.43.41	41,	G-AAHJ.	0.46.45—9.54.32
60,	G-AAEL.	1.57.36—8.43.41	63,	G-AAVT.	0.43.38—9.57.39
14,	G-AAWZ.	1.55.23—8.45.54	74,	G-AAUZ.	0.40.34—10.00.13*
1,	G-AARU.	1.54.18—8.46.29*	33,	G-AALL.	0.40.34—10.00.43
81,	G-AALJ.	1.54.18—8.46.59	57,	G-ABAX.	0.40.34—10.00.43
101,	G-AASG.	1.54.18—8.46.59	44,	G-AAHP.	0.37.33—10.03.14*
35,	G-EBWT.	1.52.07—8.49.10	9,	G-AAXW.	0.37.33—10.03.44
56,	G-AALK.	1.51.03—8.50.14	11,	G-AAYD.	0.37.33—10.03.44
40,	G-AAMG.	1.51.03—8.50.14	65,	G-AAYZ.	0.36.04—10.05.13
6,	G-AAWU.	1.49.58—8.50.49*	20,	G-AAFA.	0.34.36—10.06.11*
7,	G-AAEW.	1.49.58—8.51.19	45,	G-AAXT.	0.34.36—10.06.11*
12,	G-AAGA.	1.49.58—8.51.19	80,	G-AAXZ.	0.34.36—10.06.41
93,	G-AAVF.	1.48.54—8.51.53*	86,	G-AAZP.	0.34.36—10.06.41
59,	G-EBQN.	1.48.54—8.51.53*	26,	G-ABBH.	0.33.52—10.06.55*
83,	G-AABS.	1.48.54—8.52.23	77,	G-AAXL.	0.33.52—10.07.25
97,	G-AAFH.	1.48.54—8.52.23	79,	G-AAXO.	0.33.52—10.07.25
13,	G-AABO.	1.46.47—8.54.30	84,	G-AAYV.	0.31.41—10.09.36
48,	G-AAWY.	1.46.47—8.54.30	69,	G-AAYW.	0.20.28—10.20.49
88,	G-AAJO.	1.45.44—8.55.33	10,	G-AAXP.	0.04.54—10.36.23
3,	G-EBYZ.	1.44.41—8.56.36	43,	G-AASW.	Scratch—10.41.17

[NOTE.—* Starting 30 seconds early. ** Starting 30 seconds late. *** Starting 1 minute late.—The necessary adjustments will be made in the starting time from Hull.]

On July 5, during the progress of the King's Cup Race, a running report will be given through loudspeakers to all enclosures at Hanworth. The start will be very interesting to those who get up, or stop up, for it, because though the limit man will take-off at 07.00 hours and the scratch man at 11.30 there will be machines starting every few minutes.

From noon to 13.00 hours new types of aircraft will be flown in exhibition, and in the afternoon there will be flying until the approach of the leading competitor. Among those taking part in the afternoon programme will be Capt. René Fonck, who will be remembered for his distinguished record with the French *Aéronautique Militaire* during the War of 1914-18, and H. M. Schofield, of the British Schneider team of 1927, and now with N.F.S. Ltd.

Special arrangements are being made to facilitate approach to Hanworth on Saturday. Half-fare return tickets to Feltham will be available from many stations.

Members of the Royal Aero Club, by whose permission the event is being flown at Hanworth, will have free admission to the aerodrome, but they must either pay for their cars or walk.

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THE ATLANTIC CROSSED AGAIN.

On June 24 the Fokker monoplane named the *Southern Cross* (three Wright Whirlwind engines) started from Portmarnock Strand, near Dublin, at 04.30 hours, to fly the Atlantic from East to West. It landed at Harbour Grace, Conception Bay, Newfoundland, at 10.57 hours (Greenwich mean time) on June 25. The machine had been in the air for 31½ hours, and the crew reported that for 10½ hours they were flying through thick fog. They arrived over Newfoundland in the very early morning and circled round looking for the landing place till daylight.

The crew consisted of Mr. Kingsford-Smith (honorary Squadron-Leader, Royal Australian Air Force); Mr. A. Vandyk (formerly of the K.L.M. line), second pilot; Mr. J. W. Stannage, wireless operator; and Mr. Saul, formerly a captain in the army of the Irish Free State, who was described as navigator.

This is the second time the North Atlantic has been crossed by an aeroplane. The first successful crossing was that by Captain Koehl and Baron von Huenefeld, two German aviators, with Mr. Fitzmaurice of the Irish Free State army as passenger, who flew from Ireland to an island off the coast of Labrador in April, 1928. Several other attempts have been made to fly across the north Atlantic from east to west, but all have failed. Messieurs Nungesser and Coli in a French machine; Lt.-Col. Minchin, Mr. Leslie Hamilton, and Princess Lowenstein-Wertheim in a Fokker monoplane, and Mr. W. R. Hinchliffe and the Hon. Elsie Mackay, in a Stinson monoplane, were lost in the Atlantic. Various others returned to Europe, or were picked up at sea.

On the other hand, the airship, R.34, a British product, was the first airship to cross the Atlantic, and the Zeppelin ZR3 (now the *Los Angeles* of the U.S. Navy) crossed the North Atlantic successfully. And the *Graf Zeppelin* has crossed it so often that one has lost count.

The *Southern Cross* expedition was a thoroughly cosmopolitan affair. Mr. Kingsford-Smith, who has been called a Major by practically all the London papers, although one can find no trace of his ever having held that rank, is an Australian; Mr. Stannage is, one believes, a South African. Mr. Vandyk is a Netherlander, and Mr. Saul is a southern Irishman. The aeroplane was designed and built in the Netherlands, and the engines are American.

So far as can be discovered Great Britain had no part in the performance except that the sand on the tyres taken away from the starting place belongs to the Irish Free State, which is more or less a part of the British Empire. The air in the tyres would appear to be Dutch. Admittedly the wireless apparatus, which was what actually made the flight possible, was of British make, but the Marchese Marconi himself is half Italian and half Quaker Irish.

Much was printed before the event about the intention to fly non-stop to New York. Possibly there might have been some American-Irish kudos to be gained by flying non-stop from the vicinity of Dublin to New York. But even if that had been done the voyage as a romantic exploit would not have compared with the voyage of Charles Lindbergh non-stop and single-handed without wireless from New York to Paris. And as a serious contribution to the problems of Air Transport is of no account whatever. But, admittedly it is a good non-stop flight which could only have been done by a good aeroplane with good equipment.

Apart from any political background to the performance, the chief justification for it would seem to be to allow Mr. Kingsford-Smith to complete the circuit of the World by air, although the World had already been encircled by air by two pilots of the U.S. Army Air Service, and their two observers somewhere about 1924.

Mr. Kingsford-Smith's voyages have been spread over a matter of two or three years. He began by flying from San Francisco to Hawaii, and from Hawaii to Australia, in this same old machine *The Southern Cross*,—which he bought from Mr. Wilkins, the polar aviator.

He also flew from Australia to New Zealand. And in flying from Hawaii to Australia, and from Australia to New Zealand, he covered two air routes which had not previously been flown. To that extent he deserves his place among the pioneers of Air Transport.

From San Francisco to Hawaii the route had already been covered by several American aviators, some on land machines, and some in flying-boats. Some time last year Mr. Kingsford-Smith flew from Australia to England, and flew back to Holland, where apparently the machine has been reconditioned for this flight. A few weeks ago he flew from Holland to England, and from England to Ireland, where he has been waiting for several weeks for favourable weather.

In all his flights, which have thus encircled the earth, and have at any rate the distinction of having twice crossed the equator in doing so, the old *Southern Cross* has been guided by an excellent wireless installation. Although on each trip people with qualifications as navigators have been carried, apparently the actual direction of the aeroplane has been controlled by the wireless sending and receiving. Thus, apparently, the chief credit for these long and interesting voyages should really go to the wireless operators, whose names have not been handed down to history, though doubtless they can be discovered by those who take the trouble to search through newspaper files. And they must share the credit with the Marchesa Marconi and the able staff of the Marconi Company.

Considerable credit must also go to the aeroplane, which after so many years is still a serviceable aircraft, and to the Wright Whirlwind engine,—the good old J-5, which is said to be much more reliable than are its successors. These are, one is told, the engines originally fitted in the machine, and they have evidently performed their functions properly.

They owe much to the skilful tuning of "Doc." Maidment, the Wright Service engineer in Europe.

We are informed that Vacuum oil was used on this voyage, and therefore full credit must be given to it for the success of this, as of so many other, undertakings.

The engines owe their reliability largely to Scintilla magnetos, which are now made in England and sold from 14, Clerkenwell Close, E.C.

At the moment one has not a catalogue of the other accessories used in the flight. Apart from the advertisements secured by various people out of this voyage it does not appear to have taught anything remarkable. The general development of air transport has not been advanced one whit. There is nothing in the aeroplane which was not there five or six years ago, and in no way does the performance show any advance on those times.

Mr. Kingsford Smith, who is himself a naturally modest individual, and undeniably a very fine pilot, seems to be of this same opinion himself, for, on arriving with his companions in the *Southern Cross* at New York and receiving a great ovation, he said,—according to *The Evening Standard* which has published his "exclusive story,"—

> Considering we did not get through direct as we intended, we hardly deserved all the fuss.

Mr. Vandyk, with that common sense which is typical of the Netherlander, said:—

> It was the greatest flight I have ever had, but when I go back across the Atlantic I want to go in a boat.

Mr. Stannage wisely remarked:—

> It was a great thrill, but somebody else can do it next time.

But Mr. Saul, with that modesty which is such an outstanding characteristic of the Southern Irishman, said:—

> I could do it better next time because I have now had experience of navigating around the Grand Banks (off Newfoundland) where the compass needle is infamously erratic.

This fairly well-known fact would hardly have surprised Mr. Saul, who holds a Master Mariner's Certificate. And what experience he gained in a blind fog is difficult to imagine. But the situation seems well summed up by Mr. Kingsford Smith, who (also in *The Evening Standard*), referring to the work of Mr. Stannage, said:—

> His steady wireless bearings were all that kept us on our course.

So it all comes back to Marconi, and that is that.—C. G. G.

THERE AND BACK AGAIN.

On June 29 a non-stop flight from New York to Bermuda and back was made for the first time, according to *The Times* of June 30. Mr Roger Q. Williams, who flew from America to Spain last year with Mr. Lewis Yancey, was the pilot, and his companions were a Canadian, Mr. Errold Boyd, and Mr. Harry Connor. The machine was the same Bellanca monoplane, *Columbia*, in which Mr. Clarence Chamberlin flew from New York to Germany with Mr. Levine in 1928. It did the 1,560 miles from New York to Bermuda and back in 17 hours 1 minute,—an average of just over 90 m.p.h.

The machine carried no wireless, and the accuracy of the course-keeping is explained by the correspondent of *The Times* as being achieved by a new method of calculating the results of observations.

A report states that their ignition was affected by severe electric storms and heavy rain, so they prepared to land at Bermuda before the ignition gave out entirely. But as they could find no suitable ground they decided to attempt the return journey. As the weather cleared the trouble disappeared and they finished with the engine running perfectly.

Considering that electric storms do not, and probably cannot, affect magnetos, this bit was probably put in to make it look more difficult. The more likely explanation seems to be that the magnetos or the ignition leads were inadequately protected against wet, and the heavy rain caused intermittent short,—but, of course, that would not sound so well.

The machine was not fitted with floats, and the whole affair seems to be as reckless and as silly as the majority of Atlantic flights. At any rate the crew must be the only Americans who have ever gone to Bermuda and returned dry. And they were lucky to do that.

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Major Kingsford Smith, says:

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UPS AND DOWNS AT IPSWICH.

On June 26 His Royal Highness the Prince of Wales formally opened the new Ipswich Municipal Aerodrome by landing on it with all the pageantry of a State arrival by air. The Prince, piloted in his State Wapiti, by Sq. Ldr. F. S. Don, accompanied by his equerry, Captain J. R. Aird, in another Wapiti, and escorted by a formation of three Bluebirds of the Suffolk and Eastern Counties Aero Club, arrived at the aerodrome at 11.30 hours. He was greeted by a large crowd and lavish displays of loyal bunting from the Club members' enclosure all the way into Ipswich which was *en fête* in the most liberal meaning of the word.

The Mayor of Ipswich, Councillor A. L. Clouting, had previously come by air, in a Club Bluebird (Genet engine) piloted by Dr. Sleigh, Chairman of the Club, bringing with him the Airport Licence from parts unknown. When the Prince arrived he was received by the Major of Ipswich; the Lord Lieutenant of the County, Sir T. Courtenay Warner, Bart., C.B.; The High Steward of Ipswich, Sir Edward Packard; The Borough Member, Sir John Ganzoni, Bart.; the Bishop of St. Edmundsbury and Ipswich, Lady Bailey, President of the local Club, the aldermen and councillors of the Borough, the Mayor of Colchester and others.

When the Prince had put off his aerial garments in the club-house the Mayor welcomed him formally and he, in reply, congratulated the city on being so far-sighted as to establish so splendid an aerodrome, a convenience which all important towns would have to provide before long.

Whereupon the Royal visitor and all the attendant citizens went to Ipswich for a very crowded day of engagements.

Later, at a civic luncheon in the Town Hall, the Mayor told the Prince of the anxiety of Ipswich during his African tour and the indisposition he suffered during part of it,—for this visit was arranged before that date.

The Prince thanked the company feelingly, and assured them, amid laughter, that he was most happy to have escaped the dangers of Africa in order to visit Ipswich and took it as a great compliment that their anxiety was so entirely selfish. He then accepted a copy of the History of the Royal Borough of Ipswich.

THE AFTERNOON.

And so to the aerodrome what time his Royal Highness worked. The same cannot be said of the flying programme. It did not work, and the proceedings can only be described as exceedingly slow, and the small crowd suffered from postponements and cancellations because of the absence of everyone else on loyal occasions.

The really pleasing objects of contemplation were the aerodrome itself and the weather. Both were well-nigh perfect, but the high trees which almost encircle the former greatly reduce its really admirable proportions. Scientifically located openings will have to be made as the room is needed.

It is curious, although adept management was not in evidence, and although the aerodrome was well nigh perfect, that two mishaps should have occurred that could by no means be attributed to faulty arrangements and might have been expected on a bad field. One arrived after lunch to see a Klemm, very much bent, forlornly decorating the higher reaches of an elm. The pilot, Mr. Kennard, who had failed to get any response from his engine at the last moment when gliding in, was unhurt, thanks largely to the slow stall of his machine.

Later in the afternoon, when taxi-ing out fairly briskly for a demonstration of the Breda 15, Mr. Storr collapsed a wheel and was helped onto his back by a lively cross wind. Fin, rudder and airscrew were the only other damage.

The best exhibition flying of the day was done by Mr. George Murray and Mr. G. E. Lowdell, and the former did some very good inverted aerobatics on a Moth, G-AAXA, specially fitted for the purpose.

A bombing competition for the cup presented by Vacuum Oil Co. Ltd., and open to A licence members of the Suffolk Club, was won by Mr. F. H. Jolly. The treasure hunt was interesting to the competitors as the three clues were in the form of cross-word puzzles, or cryptograms, which led them from Ipswich to Hadleigh, then to Clacton-on-Sea and home again. Mr. E. C. Browne on his Moth, G-AATA, won by being first home.

Mr. S. A. Thorn did some pretty aerobatics on the Avian Sport (Hermes) and demonstrations were given of the Junkers Junior by Mr. Shearing, and of the Klemm (Cirrus) by Herr Franz Kirsch. Mr. R. T. M. Clayton, chief instructor of the Club, did crazy flying in a Bluebird (Genet) which struck one as slightly crazier than most.

The most striking thing about the attendance of aircraft was the number of Klemms, but this is explained by the fact that Ipswich is now the centre of Klemm activities in England.

Flying, or what there was of it, was suspended as soon as word was received of the Prince's departure. His Royal Highness asked to be picked up near Shotley, where he was inspecting the training ship, *Ganges*. Sq. Ldr. Don borrowed Mr. A. S. Preist's Moth and set off to prospect for a field. After a longish period of suspense, during which impressive and immaculate policemen lined everything there was to line, the Moth came back and disgorged the Royal visitor.

Immediately there was a rush of R.A.F. personnel to the Wapitis; and here be it suggested that a Hucks starter concealed in the neighbouring bushes would add to the impressiveness of a State departure by air and the dignity of the R.A.F. The Heath-Robinsonian methods in use away from home nearly resulted in a further errand for Mr. Preist's Moth, as the Prince was due at Buckingham Palace very shortly on other matters of international moment. Its ever-ready Gipsy was revving up when the Jupiter of the second Wapiti started, and in very short order it took off, the Prince and the loyal citizens of Ipswich exchanging cheery waves.

Hardly was he well up when the perspiring tug-of-war team coaxed the other engine into life, and Capt. Aird ensconced himself in the exceptional comfort of the State vehicle with a novel, and got decidedly the best of it.

As it was now late the air quickly became sonorous with departing guests. Thirty-eight machines attended Those present included the following:—

Moths (Gipsy): Lady Bailey, Major Allen, Miss Spooner, Messrs. Lowdell, Tyzack, Preist, Evans, Murray, Westenra, Quilter, Browne. Moths (Hermes): Messrs. Bentley and Stack.

Avians (Hermes): Messrs. Allen and Thorn. Avians (Cirrus): Messrs. Surtees and Cubitt.

Spartan (Cirrus III): Lt.-Col. Strange.

Klemms (Salmson): Messrs. Rogers, Stevenson, Kennard, Alliott, Shearing. Klemm (Cirrus III): Herr Kirsch.

Desoutter (Hermes): Mr. Morton.

Bluebirds (Genet): Suffolk and Eastern Counties Aero Club, three. Bluebirds (Gipsy): Messrs. Windsor and Blackburn.

Widgeon (Gipsy): Mr. Hanstock.

Breda 15 (Gipsy): Mr. Storr.

Junkers 13 (Junkers engine): Messrs. Clarke and Cotterell. Junkers Junior (Genet): Mr. Trost.

A MARINE INTERLUDE.

Brighton is having a Gala Week or Grand Orgy of Automotive Transport, and on June 30, in spite of its being the Monday between the R.A.F. Display and the King's Cup Race, Mr. M. H. Volk somehow managed to produce a creditable display of aeroplanes and pilotage over the Front. If he had not confessed to considerable anxiety over the outcome one would never have guessed it, but he and his co-worker, Mr. F. G. Miles, of Southern Aircraft Ltd., were obliged to change at the last moment from a flying-boat event to a flying meeting held over water and eked out, willy nilly, by a few "circus" turns. Tentative offers of aid from Service flying-boats fell through, and the one private owner of a flying-boat who had been laboriously discovered and approached was otherwise engaged.

All of which failed to damp the spirits of the pilots and friends entertained by Mr. Harry Preston and Mr. Volk to lunch before the event. The pilots were duly grateful for Mr. Volk's thoughtful provision of fast motor-boats at strategic points along the shore.

As they had offered to give a display over water, the performers went the whole hog. Brighton beach is hopeless as an emergency landing-ground and there was plenty of water, so they flew low on the principle that it was no more dangerous than higher up, and more interesting. They worked from the aerodrome at Shoreham, six miles away.

Three Klemm monoplanes supplied the first turn, with low flying by Mr. John Rogers and Capt. Kennard with Salmson engines, and aerobatics by Herr Franz Kirsch in the two-seater (Cirrus III).

The dense crowds along the sea front waxed enthusiastic over the flying of Mr. H. M. Schofield, of N.F.S. Ltd., in a

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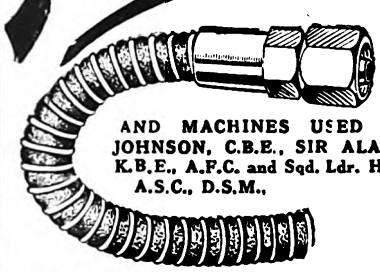

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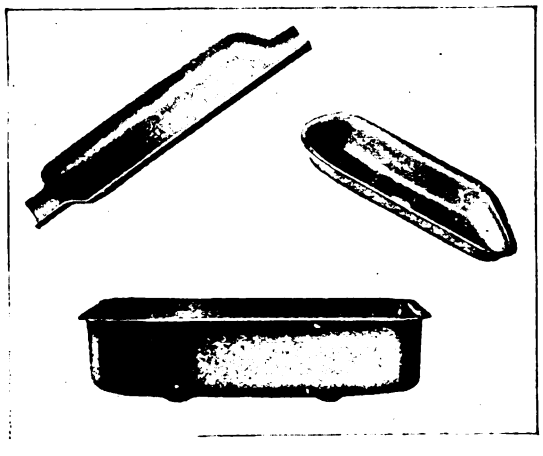

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Moth (Cirrus III). He arrived high up, but descended with complications to more intimate levels.

Mr. Dudley Watt showed off the D.W.2, and Mr. Miles the Southern Martlet, now equipped with a four-in-line engine, which is presumably the Gipsy mentioned in the list of entries for the King's Cup Race. It has an impressive turn of speed and fighter-like performance.

An Avro of the Southern Aircraft Ltd. flew over with Mr. H. R. Mason walking the wings. Mr. Volk apologised for this turn, protesting his full realisation that wings were to fly with and not to walk on, but what was he to do under the circumstances? His justification appeared in the actions of the crowd, which turned its Argus eyes, for once, off the mechanical board on the Aquarium whereon the play of the Test Match was being reproduced, stroke by stroke.

All participating aircraft, with the addition of Mr. George Murray on G-AAXA, the inverted-flying Moth, flew past in parade, and then two Avros joined in bombing a speed boat. The target could not be coaxed more than a few yards off shore, so the attacking craft had less chance than they might have had for most spectacular results.

The organisers deserve a good deal of credit for supporting so nobly that super-committee whose business it was to order bricks without supplying straw; but one hopes that our sea-girt isle, on some more timely occasion, may produce a few craft appropriate to Brighton and exhibit those wares in which we profess to excel,—to wit, flying-boats, amphibians and seaplanes. No better theatre could be devised than the sunny stretch of Channel which fronted the esplanade on Monday, and was monopolised so gallantly by a forlorn hope of land machines, and no better amphitheatre could be found than the Brighton beach and its tiers of roadways.—F. D. B.

A ROYAL PUSS-MOTH.

H.R.H. the Prince of Wales has placed an order for a D.H. Puss-Moth (D.H. Gipsy III inverted engine) with the De Havilland Aircraft Co. Ltd.

The machine G-ABBS will be, to all intents and purposes, perfectly standard but will have certain extra equipment and will be finished with a special colour scheme personally chosen by the Prince of Wales.

The upper half of the fuselage and of the engine cowling will be blue and the lower half of the fuselage will be red with the lower half of the cowling polished. A thin silver line will divide the two colours on the fuselage.

Of the wing bracing struts the front ones will be red and the rear ones blue. The wheel discs will be blue.

The wings, ailerons, elevators and tail plane will be silver and the rudder will be divided into three equal vertical stripes of blue, red and blue. The registration lettering will be painted on the fuselage in silver outline and on the wings in blue. The whole colour scheme will be done with Titanine materials.

The interior upholstery will be in red leather, and the machine will be supplied with a large detachable seat which will replace the usual back seat when required. This is an alternative to the usual scheme which embodies two ordinary seats and a third occasional seat. The large seat when in use will be located directly behind the pilot's seat.

The Royal Puss-Moth will carry 35 gallons of petrol in two wing tanks which will be enough for a journey in still air of about 735 miles.

HAPPY AND GLORIOUS.

Although the Croydon Borough Council refused unanimously to sanction the opening of an aerodrome at Addington, Henlys (1928) Ltd., on appeal, have been permitted by the Ministry of Health and the Air Ministry to build the aerodrome.

The Ministry of Health, in a letter to the Council, says that the licence has been granted by the Air Ministry for the current year on condition that the use of the aerodrome is restricted to flying small aircraft and that there is to be no solo flying by pupils under instruction.

The Minister also states that while he appreciates that some inconvenience and some depreciation of values may be caused, "it is no more practicable to prevent the establishment of aerodromes where there is sufficient demand for them than it was formerly to prevent the construction of railways or than it is proper to stop the erection of garages."

Actually the only valid objection to an aerodrome at Addington is that people flying from there may get in the way of air-line machines going to or from Croydon.

AT THE HALF-WAY MARK.

Mr. Eric Hook and Mr. J. Matthews are meeting heavy going on their way to Australia. Only an extraordinary combination of good flying and good luck from now on will enable them to beat Mr. Bert Hinkler's record. Mr. Hinkler did his greatest flying on the second half of the journey, and it delayed Miss Johnson badly after she had gained more than two days on his time by her short rest.

Messrs. Hook and Matthews were obliged to land for repairs to a leaking fuel-tank on the first day, they lost their way for four hours after leaving Gaza, and they lost a similar amount of time because of a dust-storm outside Basrah. They were threatened with arrest for landing at Bushire without a permit and kept for five hours, but they landed at Karachi eventually—with three minutes' supply of petrol just as a monsoon storm broke there. Against the advice of weather experts they left Jhansi for Calcutta, but were forced to return to Allahabad by a strong wind.

On the eighth day of their respective flights Mr. Hinkler and Messrs. Hook and Matthews reached Karachi, and Miss Johnson got as far as Calcutta.

THE HANDLEY PAGE COMING OF AGE.

On July 7 H.R.H. Prince George will open the new Handley Page aerodrome at Radlett, Herts. Handley Page Ltd. will thus celebrate the 21st anniversary of their incorporation as a company. The new aerodrome is between Elstree and St. Albans, but the works will remain at Cricklewood.

AN ACCIDENT AT CROYDON.

On the evening of June 29 Scotland Yard issued a statement which said "At 2.40 to-day a Moth aeroplane, piloted by Mr. A. A. Anderson, with a passenger, Mr. Hammett, crashed into a field at Purley Way Warren, close to Croydon Aerodrome. The machine was totally wrecked and the pilot and his passenger were killed instantaneously."

Apparently Mr. Anderson had taken up a friend as passenger and intended to fly to Brooklands. Nobody appears to have any clear idea of what actually happened, though some reports state that the machine was making a left-hand turn from which it went into a vertical dive.

Alexander Arnott Anderson, or "Jock" Anderson, as everybody called him, was 34 years of age. In 1915, when he was a very young serjeant in The Royal Scots, he transferred to the R.F.C. and went to Hurst Park. He went to No. 8 Aircraft Acceptance Park at Lympne on its formation and was still there in 1921. He was then a Flight Serjeant.

In 1922 he went to the A.D.C. at Waddon and later joined Surrey Flying Services. After that he became senior ground engineer to Lt.-Col. Henderson at Brooklands, where he learned to fly. Recently Mr. Anderson has been making a name for himself by his efforts as a parachutist and wing-walker. His exhibitions have been a feature of many flying meetings. At the time of his death he was still head mechanic and senior ground engineer to Lt.-Col. Henderson.

"Jock" Anderson was extremely popular at Croydon, and his loss will be deeply felt. To his widow and son, as well as his many friends, one offers the most sincere sympathy.

MANY INVENTIONS.

In the past we have always assumed that the air lines would show very poor passenger returns at the end of the year if there was no seasonal rush of American tourists in summer. So far this year there have never been sufficient Americans gathered together at one time in the aerodrome main hall to crack even a single pane of glass by mass voice vibration, so that without exaggeration (a thing we hate) we may say that the American tourist trade is plumb rotten this year. It is all the more interesting therefore to see that traffic returns for June on some lines are even better than in June, 1929.

The probability is that all firms have made special efforts to interest the business traveller in air transport this year, and in Holland an intensive and successful campaign by K.L.M. has led to excellent results in this way. The fact that American travellers have apparently all been devoured by bulls or bears in the wide open spaces of Wall Street has certainly hit European aviation a nasty crack, but it looks as though this might be the means of building up a more solid and regular traffic of passengers for the future. [So far, thanks to our subsidy system, we have—according to Mr. Handley Page's calculations—been paying each American tourist £8, out of the British Taxpayer's pocket, to cross the Channel by air.—ED.]

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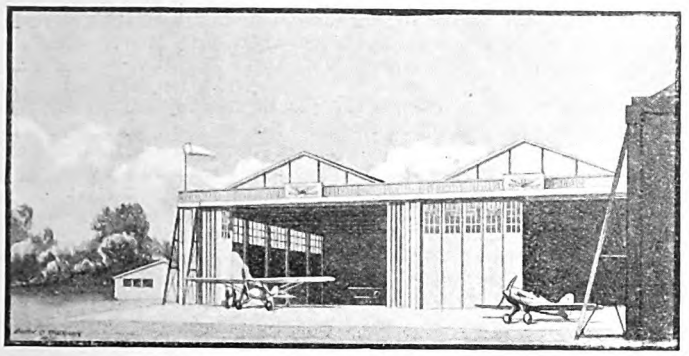

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A sign of the times, too, is that the Liverpool—Manchester—Birmingham—Croydon connection has been running full up recently and that north-country strap-hangers have even been detected and ejected from machines.

One big business man in the north told an Imperial pilot that he would send his numerous travellers by air to London in future, not only because he could thus keep his travellers handy until a later hour in the day for last minute instructions, etc., but also because after paying first-class rail-fare, extra fees for sleepers, and the numerous incidental expenses of those who travel at a leisurely rate along two steel bars behind a highly organised kitchen range with tea kettle attached, he found it cheaper to send his travellers by air.

Whether because all short men are choleric (for physical reasons of which see Master Rabelais, his works), or because these particular gentlemen have very winning ways and charming manners, we know not, but Messrs. Robinson and Piercey managed to get the Redwing through Martlesham (not Farnborough) in one day between about 9 a.m. and 3.30 p.m. completing all tests for C. of A. in that brief space of time, which, we believe, constitutes a record for Civil Aircraft. Mr. Piercey, by the way, thinks very highly of the Redwing which, besides being so handy in the air as to be pretty nearly foolproof, lands at 30 m.p.h. and pulls up in about 6 yards against a 10 m.p.h. wind, in his experience.

People who happen to be Spring-cleaning the billiard table in the back yard should therefore put up obstruction flags and notices, reading "No Redwings, by request," unless they want flocks of these small aircraft landing, and then going to roost with folded wings in the pockets.

According to the daily papers Mr. Jack Matthews, who with Mr. Hook is making excellent time towards Australia in a Moth, at the time of going to press, was shot at by an Arab of a morose turn of mind recently. As a matter of fact our Jack has often been warned about his face resembling a Neon beacon, and very young pilots have been known to follow him down Purley Way at dusk under the impression that he was a floating Neon beacon and have only been prevented from landing outside the Waddon Arms by the unexpected disappearance of the beacon through the door marked "Saloon."

Any artful arrack-filled Arab seeing one sun in the zenith and another peering over the side of a Moth and making faces at him would naturally loose off his length of gas-piping under the impression that all the djinns of the Desert were after him for an infringement of the prohibition laws laid down in Alkoran. As a matter of fact Jack should take to the purdah [? yashmak.—ED.] when in the East.

At Ipswich it is said that certain ships which took up a pitch which afforded an umbrageous niche which was perhaps preferable to the ditch which they might have landed in otherwise, caused a hitch which only the very rich, which can afford such trifles, could have tolerated.—[N.B.—A goak.—ED.]

The question was (one is discredibly informed) whether aircraft roosting in trees on the edges of aerodromes should pay landing fees or not. For the guidance of future pilots possessing this happy arboreal knack the following arguments are put forward for what they are worth:—

(a) That it is their normal routine, as they come of a Nordic (and consequently obstinate) tree-dwelling tribe accustomed to live on the pips which the Ipswich (and other) crab apple trees afford and that they always sleep hanging head downwards from boughs like bats, by their spats.

(b) That they do not come under the Air Ministry at all but under the Ministry of Abstruse Nidification and that their authority for their actions lies in the Wild Birds Protection Act of 1888 (para. 3. sub. sec. 99—Fair play for lesser crested tree pippits).

(c) That they never landed on any aerodrome anyhow, so what about it?—SPRY.

PERSONAL NOTICES.

BIRTHS.

COTTON.—On June 23, at 27, Welbeck Street, to Joan (*née* Henry), wife of F. Sidney Cotton—a daughter.

WINDSOR.—On June 22, at 21, Parade, Barry, Nancy (*née* Morris), wife of Capt. J. S. Windsor, M.D., South Wales Borderers, late R.A.F.—a daughter.

JONES.—On June 24, at 9, Cedar Road, Neath, to Mrs. Jones and Capt. Simon Jones, D.F.C.—a daughter.

MAITLAND—On June 25, at Alverstoke, to Alison (*née* Kettlewell), wife of Sq. Ldr. P. E. Maitland, R.A.F.—a son.

FORTHCOMING MARRIAGES.

IRON—SANKEY.—The marriage arranged between Sq. Ldr. Douglas Iron and Mrs. Phyllis Violet Sankey, will take place on July 7.

GARDNER—BALCHIN.—The engagement is announced between Sq. Ldr. Richard Gregory Gardner, R.A.F., youngest son of Mr. and Mrs. George H. Gardner, of Southsea, and Jessie Grace, eldest daughter of Mr. and Mrs. George J. Balchin, of Regent's Park Road, N.W.

STILWELL—GAUNTLETT.—The marriage will take place on July 10, at Yateley, Hampshire, between Flt. Lt. Christopher Stilwell and Miss Freda Gauntlett, elder daughter of Sir Frederic and Lady Gauntlett.

MARRIAGE.

ORCHARD—FEARON.—On June 29, at Barnes, Plt. Off. Arthur Thomas Orchard, R.A.F., son of Mr. and Mrs. Orchard, of Seddon, Marlborough, New Zealand, to Gladys Mary Fearon, third daughter of the late Mr. and Mrs. Frank B. Fearon, of Panama, Central America.

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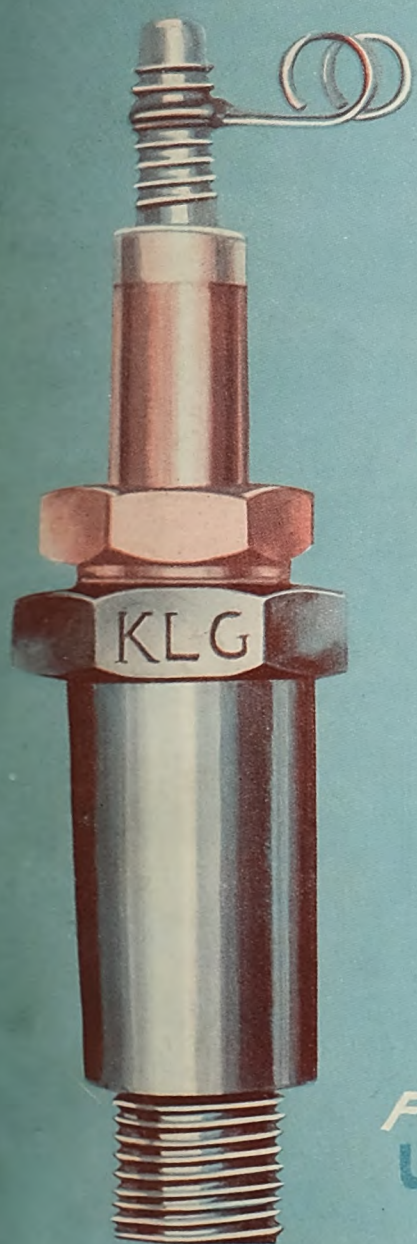
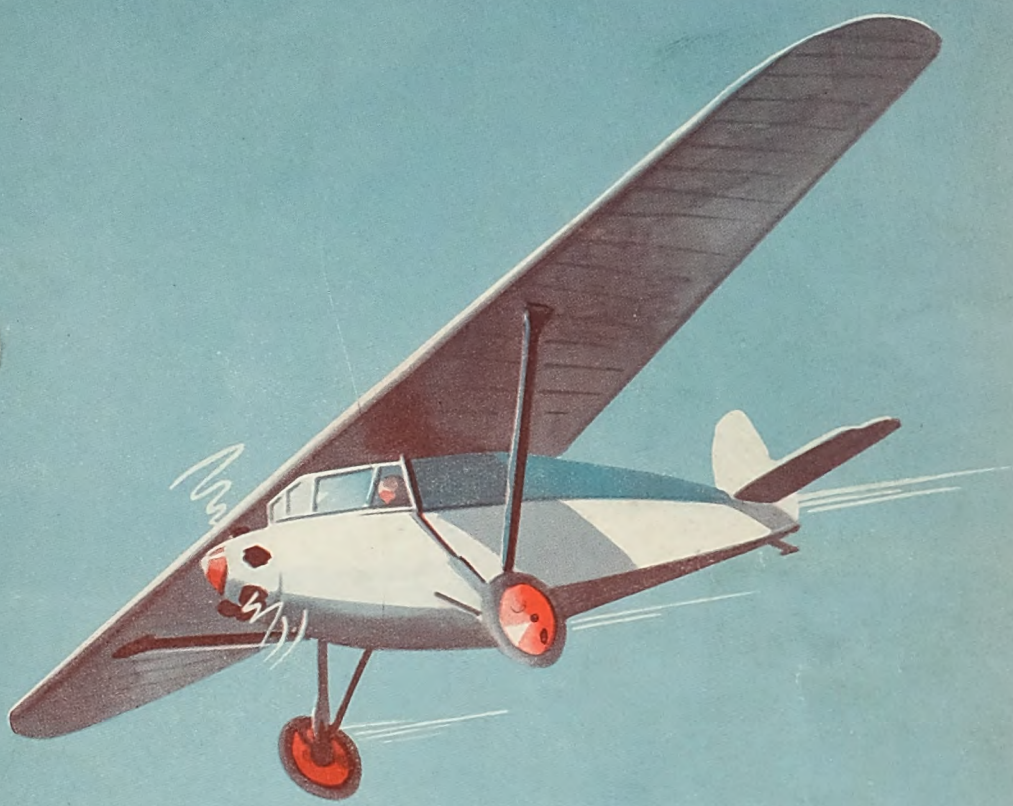
THE AEROPLANE

6d. Weekly.

INCORPORATING AERONAUTICAL ENGINEERING

Edited by C.G.Grey





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FOR PERFORMANCE - NOT PROMISE

USED BY WINNERS OF THE

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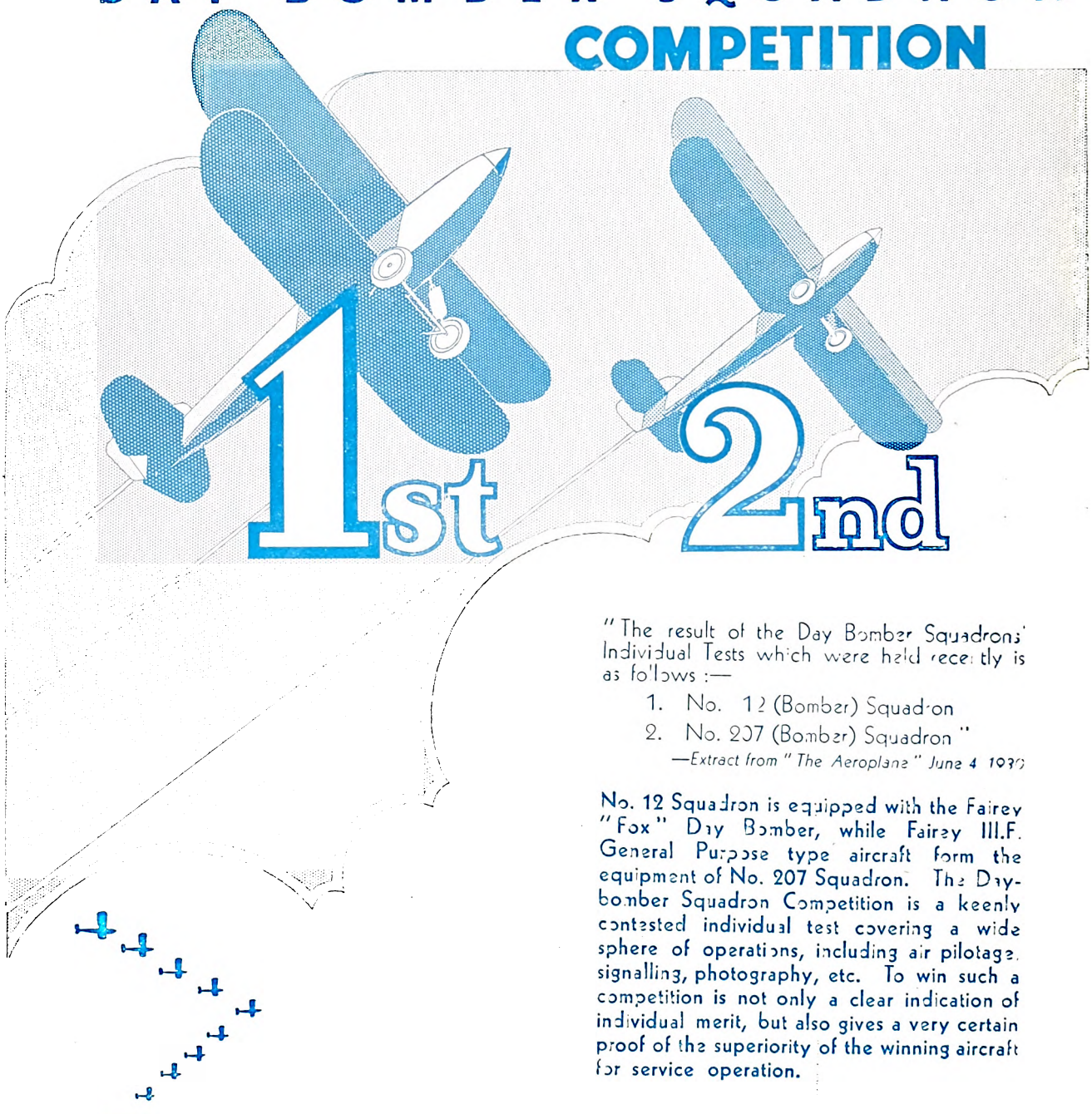
THE ROYAL AIR FORCE

DAY BOMBER SQUADRON COMPETITION



"The result of the Day Bomber Squadrons' Individual Tests which were held recently is as follows :—

1. No. 12 (Bomber) Squadron
2. No. 207 (Bomber) Squadron"

—*Extract from "The Aeroplane" June 4 1930*

No. 12 Squadron is equipped with the Fairey "Fox" Day Bomber, while Fairey III.F. General Purpose type aircraft form the equipment of No. 207 Squadron. The Day-bomber Squadron Competition is a keenly contested individual test covering a wide sphere of operations, including air pilotage, signalling, photography, etc. To win such a competition is not only a clear indication of individual merit, but also gives a very certain proof of the superiority of the winning aircraft for service operation.

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HIGH PERFORMANCE SERVICE AIRCRAFT

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JULY 9, 1930.

THE AEROPLANE

Incorporating
Aeronautical Engineering

VOL. XXXIX
No. 2.

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ON THE KING'S CUP AIR RACE.

On July 5 the ninth Race for the Cup graciously presented by His Majesty the King for a cross-country air race took place, starting from and finishing at the Hanworth Aerodrome. Whether the race is to be considered the greatest success or the greatest failure among air races in this country seems to be largely a matter of opinion.

There were more entrants for the race than there have ever been. Probably there have never been so many entrants for any air race anywhere. The percentage of starters out of the number of entrants was higher than ever before. And the percentage of finishers out of the number of starters was also higher than ever before. There were no serious accidents in the race.

There were more new and interesting types in the race than there have ever been. The cabin monoplane in its various forms, and the cabin biplane, came into their own, after many years' delay. And inverted engines, as well as radials, gave a good account of themselves.

The winning machine brought the pioneer Avro firm into the limelight again, and with the Cirrus engine it gets a World-wide and well-deserved advertisement. And of all the 88 starters there could have been no more popular winner than Miss Winifred Brown. To that extent the Race was an unqualified success.

Miss Brown thoroughly deserved her win. She has been flying consistently well for three or four years and in the North she has made a name for herself as a thoroughly sound, sensible and safe pilot of the sort who escapes crashes by avoiding them and not by mere cleverness in getting out of tight corners.

She is quite one of the most popular people among the sporting crowds in Aviation because in spite of her ability as a pilot and her international reputation as a hockey player, she never gives herself airs and is always thoroughly friendly with everybody. If she has to be photographed she submits with good grace but she is never out after publicity. In fact in every way she is entirely admirable. — and, above all, she is indomitably cheerful.

Anyhow, Miss Brown has got a World-wide advertisement this time whether she likes it or not. And of those to whom advertisement is the essence of their existence a number of deserving firms have achieved their desserts.

Apart from the Avro Avian and the Cirrus engine, we have B.T.H. Magnetos and K.L.G. Plugs responsible for the ignition; B.P. Spirit and Wakefield Oil responsible for the power and lubrication of the engine; Smith's Instruments and the Husun Compass responsible for the controls and navigation; Titanine Dope responsible for the flying and control surfaces; Tecalemit Lubrication responsible for the smooth functioning of the controls; and Palmer Tyres responsible for the safe landings and gets-off.

CHAOS.

On the other side of the balance sheet must be placed the fact that though the Bristol and Manchester controls were very well worked indeed, there was such absolute chaos at the controls at Newcastle and Hull that the result of the race might have been entirely different if the machines had been checked in and sent off at the proper times.

The officials at Newcastle and Hull certainly deserve every sympathy because by the time the competitors reached those controls they were becoming bunched up and were arriving in flocks so that to deal with them properly every control would have needed something like ten times the number of officials that were appointed, and every one of those officials would have had to have been thoroughly competent and experienced hard workers. And, as everyone knows who has ever tried to run a competition with volunteer workers, about 75 per cent. of these amiable volunteers are neither competent nor experienced nor hardworking. But, even after making all possible allowances for overcrowding and inexperience and everything else, the way the competitors were mishandled at those two controls was wholly lamentable.

Probably the first half-dozen competitors to arrive at each control were checked in and sent off at approximately the proper time and this alone gave them a distinct advantage over the competitors with short handicaps, because these latter arrived in among the huge crowd of slow machines (which were practically out of the race anyhow) and many of them were held up to such an extent that allowing for the excessive time they were held back over their proper starting time one or other of them might very well have got into the first three, or might even have won.

PILOTS' EXPERIENCES.

A certain pilot of considerable experience says that he could quite easily have won the race by the simple process of checking in at each of these controls and then starting himself off without stopping for the forty minutes which the rules specified, because when he did get off several minutes later than he should have been, he went of his

"SUCCESS, THE MARK NO MORTAL WIT OR SUREST HAND, CAN ALWAYS HIT."
(BUTLER—*Hudibras*)

THE SMILE OF VICTORY.—Miss Winifred Brown with the Cup graciously presented by H.M. the King.

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own accord without any official control. Another competitor, whose statements are quite reliable, says definitely that he was allowed to go away eight minutes late at Hull after having spent that time in protesting against being held back.

The fond illusion that the odd thirty seconds' advance or thirty seconds' retard in starting certain machines from Hanworth, so as to avoid starting more than two machines at the same time, would be adjusted at Hull was completely shattered.

We can only hope that in the course of the next week or so the official time-sheets from Newcastle and Hull will be strictly investigated by the Committee of the Royal Aero Club. We can hardly hope that a revised list of placings will be issued to indicate what would have happened if the various machines had been sent off at their proper times. And in any case one doubts whether the said time-sheets would give any idea of the times at which the machines actually arrived and started. But some sort of a readjustment, so far as the time-sheets go, might be quite informative to the Racing Committee of the Royal Aero Club.

There is one perfectly simple way of avoiding all this trouble in future. That is, have no controls at all. Merely have turning points. Then anyone who wants to land for petrol or adjustments can do so, and those who do not need not. Or have only one control as explained hereafter.

The Danger Point.

Another result of this appalling over-crowding was that the arrival and starting of the machines was about as dangerous as anything that has ever been seen in the history of British Aviation. The fact that there were no collisions and no fatal accidents is the highest possible testimony to the skill of British pilots and the manœuvrability of British aircraft. One very well-known pilot who was acting as an official at one of the controls says that he started out with the intention of reporting every pilot who was guilty of dangerous flying, but that he gave up the idea after the first fifty.

Even at the finish at Hanworth the way in which machines landed alongside and across and head-on towards machines which were finishing was enough to cause heart failure to anybody who knew anything about flying. But after the first fifteen or twenty had escaped without fatal results affairs reached that stage when there was nothing to do except laugh,—albeit slightly hysterically. Even Captain Lamplugh of the British Aviation Insurance Group recovered his colour, and was seen to smile again.

As a matter of fact, whatever excuse there may have been for the overwhelmed and inexperienced people at Newcastle and Hull, there was no excuse at all for the lack of management at Hanworth. In this one is not blaming the Hanworth people at all, because the racing arrangements were entirely in the hands of the Royal Aero Club, or at any rate ought to have been if they were not. And the R.Ae.C. ought to have issued strict instructions to pilots before they started about what they were to do after arriving.

The geography of Hanworth makes proper arrangements difficult, because the grounds of the Club and the sheds and everything else are in a clump, bang in the middle of the aerodrome, so that the starting ground and getting-off ground consist of very long but comparatively narrow strips on all four sides of the centre clump.

With a big and more or less square aerodrome as at Heston or Hendon the finishing stretch could be on the right side of the aerodrome (as the machines come in) next to the crowd, and then machines could circle round to the left and land on the other half of the aerodrome in the same direction as the machines which would be finishing if the wind happened to be that way, or in the opposite direction if the finish were downwind. At Hanworth the best arrangement would have been to have ordered pilots after finishing to make a right-hand circuit and land on that part of the aerodrome on the opposite side of the centre clump, where they would have been right out of the way of machines which were finishing.

So far as can be learned no landing instructions were given to the pilots at all. Consequently they all landed on the part of the aerodrome over which the other machines were finishing, some of them shrieking down not more than about twenty feet off the ground. Here, as at the other controls, thanks to the skill of the pilots and the manœuvrability of the machines, there were no collisions, but there were several horribly heart-stopping sights.

Another very bad piece of mis-organisation at Hanworth was the absence of any finishing line which could be identified by the crowd. Even the official announcer, standing on a kind of temporary control-tower, was not quite sure about the line when the winner was about due. He could see the two arrows on the ground which marked the line for the competitors, but he found great difficulty in describing their whereabouts to the crowd.

Fortunately there was not a neck-and-neck finish, but provision should always be made for such things. And there would have been no difficulty at all in sticking up a couple of short poles with big flags on them on opposite sides of the aerodrome to show where the finishing line was supposed to be.

Constructive Criticism.

People who are criticised are fond of telling their critics to go and do better themselves, or at any rate to come along with some useful suggestions. And, as criticism in The Aeroplane has always been constructive even when it has had to be destructive so as to make room for construction, here are some suggestions for next year's race which may do something towards improving it:—

In the first place, the King's Cup Race is intended to improve the breed of British aircraft just as our horse races are intended to improve the breed of British horses. And so long as the Aero Club allows any old aeroplane to be entered for the King's Cup Race it is not doing the right thing to improve the breed.

In this particular race the admission of old and slow aeroplanes undoubtedly hampered the progress of the faster machines on the short handicap marks by cluttering up the control stations as aforementioned. Therefore the first suggestion is that no machine should be accepted for next year's race unless it can produce an Airworthiness Certificate showing a speed of 120 miles an hour or more. That would eliminate all antique machines and would tend

THE STARTER AND TIMEKEEPER.—Colonel Lindsay Lloyd and Mr. A. G. Reynolds.

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AT the Royal Air Force Display at Hendon on Saturday, June 28th, among the aircraft taking part were machines in the following classes—

Day Bomber	—	Fairey (Napier) III F
Night Bomber	—	Vickers (Napier) Virginia
Troop Carrier	—	Vickers (Napier) Victoria
Flying boat reconnaissance		Supermarine (Napier) Southampton
Interceptor fighter	—	De Havilland (Napier)

Napier engines have been selected for these aircraft because they have proved their high efficiency, reliability and general excellence under actual Service conditions.

The Napier engine can be depended upon always. Whether in hot or cold climates, for high speed day bomber or long distance night bomber, the Napier engine has proved itself the most efficient aero engine in production.

The standard Napier engine develops 570 h.p. at 2,585 r.p.m. and weighs 1¾lb. per h.p.

IMPROVE YOUR AIRCRAFT
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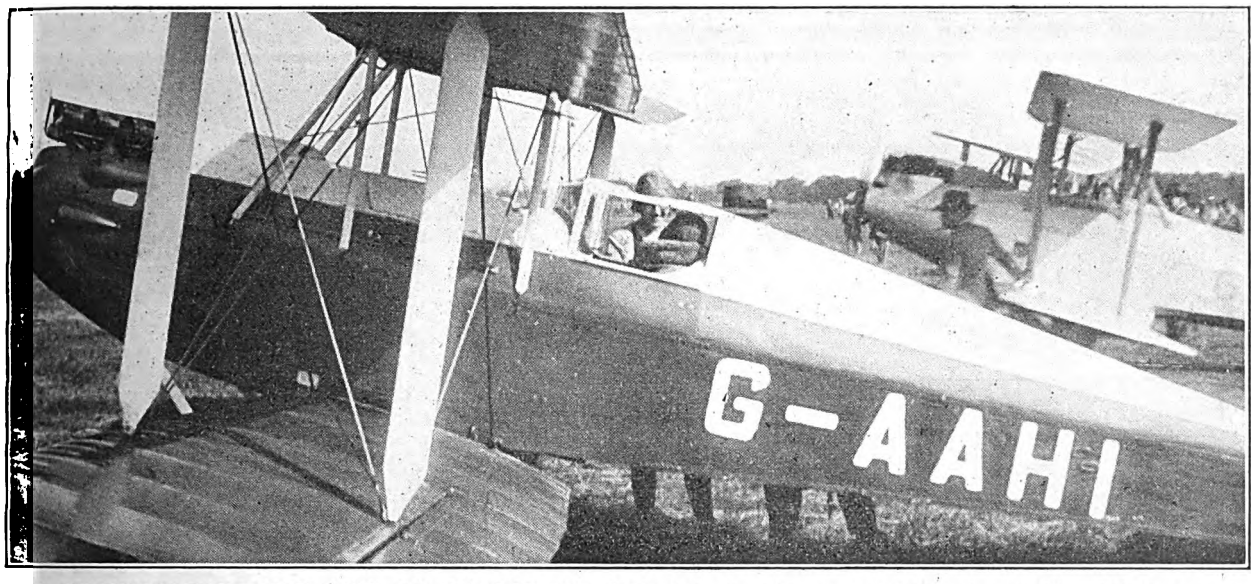

A CONSERVATORY FOR ONE.—Mr. Nigel Norman just ready to get away in his single-seat Gipsy-Moth coupé.

The Times passed that "as to" should be explained, but evidently what he means is that if the R.Ae.C. Committee restricted types would-be competitors would not like it. Here one disagrees. Competitors with good fast machines would be glad to see the slower machines out. And next year there will be more than enough competitors with good fast machines.

The writer in *The Times* also says that the large entry of amateur pilots this year has turned attention to the possibility of excluding professionals. Such an idea is utterly ridiculous. The whole essence of the King's Cup Race is that it should improve the breed of aircraft. And excluding professional pilots from the Race would be as silly as excluding professional jockeys from the Derby. But one certainly does agree that professional pilots ought to be barred from posing as passengers while inexperienced, and, in some instances, obviously incompetent persons pose as pilots.

PILOTS AS PASSENGERS.

Another matter which deserves attention for next year's race concerns the pilots themselves. If two people are going to pilot an aeroplane they ought both to be declared as pilots. In this race and in previous races there have been too many instances in which a person has entered as a pilot and has taken with him (or her, as the case may have been) a first-class professional pilot whose name has not appeared at all.

In certain of these instances the performance of the machine has shown skilful course-finding and piloting of which the alleged pilot was obviously incapable. In future steps should be taken to assure that the person who pilots the machine is the person who gets the credit for the performance.

Also something ought to be done about pilots changing machines after the programme has been printed. For example, this year Mr. Lawrence Hope, who has won the Cup twice, entered himself in a Puss-Moth with Mr. R. O. I. Muntz (not Mr. Alan Muntz) in his old streamlined Moth biplane, and then at the last moment elected to fly the biplane, probably for the very justifiable reason that it looked as if it had been better treated by the handicapper. If the weather had been windy the Puss-Moth might have been the more favoured mount.

Somewhat similarly Mr. and Mrs. Alan Butler also changed places, and Mr. Butler flew the super-streamlined Gipsy-Moth in which Mrs. Butler and Miss Sale-Barker were to fly. The result of this latter change was that the official announcer, who had not been informed of the change, made quite a nice little speech, when the Gipsy-Moth finished impressively in second place, about the prowess of feminine aviators in taking first and second places,—which caused intense joy to the feminine onlookers.

When, after the machine had come in with a perfectly beautiful and quite masculine side-slip landing and had taxied up to the official tent, Mr. Butler emerged, there was quite a perceptible jeering sound of male voices, naturally not directed at Mr. Butler but at the too-elated girl-friends. But surely somebody ought to have had the duty of seeing that the official announcer was properly informed.

BROADCASTING.

Apropos the official announcer.—The wireless wagon was very skilfully installed under a spreading tree with a cool-looking stream immediately behind it. One complimented the official in charge on his choice and suggested that between the more exciting happenings he might, as great generals are said to do between crises in a battle, do a little peaceful fishing. "The Compleat Wangler in fact,"—remarked a bystander.

A TWO-SEAT CONSERVATORY.—Major C. Marmaduke Pickthorn protruding from a hole in the top of his Gipsy-Moth, with conservatory attachment.

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CIRRUS MARK

THE KI

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SIDDELE

Piloted by Miss

at an average speed of 10

Miss Winifred Brown with the King's Cup.
Mr. V. R. Addams (Navigator) with Siddeley Trophy.

Miss Winifred Brown said:

"I had a CIRRUS engine. Its performance was wonderful. I opened it full out when I took off and ran full out the whole 750 miles.

Not once was it necessary to make any adjustment of a single part.

The engine was running just as perfectly at the end as at the moment of starting.

I attribute my success to the efficiency of the engine."

THE KING'S CU

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II AVIAN WINS

'S CUP

TROPHY

inifred Brown

h. over 750 miles course.

SIDDELEY TROPHY

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Telegrams :—"Ocirruso, London."

CIRRUS and HERMES engines successfully completed the course in many different types of aircraft.

Amongst the first twenty-five machines to complete the course of 750 miles were :—

2 CIRRUS AVIANS
1 HERMES BLUEBIRD
1 HERMES DESOUTTER
1 HERMES ELF
1 HERMES HENDY 302
3 CIRRUS MOTHS
1 HERMES SPARTAN
1 HERMES WIDGEON

Miss Winifred Brown's Winning Cirrus Avian.

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Anyhow the self-indulgence was justified because the announcing was very well done, barring one or two mistakes which simply indicated bad staff-work in not keeping the official announcer properly informed.

This is another matter to which attention should be paid next year, because people are becoming more and more keenly interested in flying and are therefore more and more apt to resent anything which shows that curious contempt for accuracy which is generally associated with the daily Press,—who seem to work on the idea that anything is good enough for the public so long as it amuses them or causes them some emotion, no matter how futile.

One excellent example of that attitude of mind is the story which some papers published about Miss Winifred Brown and her "secret fiancé." The inference seemed rather to be that Miss Brown was secretly engaged and would get married if she won the King's Cup, or something of that sort. As a matter of fact one had the pleasure of being introduced by Miss Brown to her fiancé Mr. Addams at Manchester something over a year ago, so evidently she was not keeping the secret very carefully. Anyhow, good luck to them both. They thoroughly deserved their win.

Aerodrome Control.

There is another matter concerning which the Racing Committee of the Royal Aero Club might very well introduce and enforce a regulation,—that is the number of people who have no right at all to do so who are allowed to wander about on the aerodrome. Also there is the troublesome person who is entitled to be on the aerodrome but for some silly reason, a kind of inverted conceit, refuses to wear a badge or an armlet.

Armlets should be given freely to all who have a fair claim to them, not only to competitors and their immediate mechanics but to their personal friends whom they wish to take onto the aerodrome at the start. And naturally immediate relatives should be entitled to armlets which would allow them to greet competitors at the finish.

A SILVER COLLECTION.—Miss Brown and her fiancé with the King's Cup and the Siddeley Trophy.

"THEY LAUGH THAT WIN."
(Shakespeare—*Othello.*)

THE WINNING CREW.—Miss Winifred Brown and Mr. V. R. Addams, the crew of the winning Avro Avian. In the background is Mr. J. Jeffs, the Air Ministry Traffic Controller at Hanworth.

Or, to put it another way, each competitor might be allowed to apply for a certain number of armlets which he or she could then distribute. And everybody who had not an armlet should be removed from the aerodrome. The absence of proper regulations gives a lot of trouble to hard-working officials at practically every meeting that happens.

At the Start.

The story of the race and the official Aero Club figures, for what they are worth, are published hereafter. But there are a few points on which one would still like to touch. The start was excellently done. Major Lindsay Lloyd, who has probably had more experience of starting races of various sorts, land, water and air, than anybody else in this country, remarked afterwards that this was the longest start he had ever had to do with. It began at 07.00 hours and ended at 10.41 hours. This irritation of an 07.00 hours start would cease if the 120 m.p.h. rule were enforced.

Hardly anybody made a mistake at the start. The pilot of the Avro Five stopped his starboard engine, probably through throwing his throttle open too suddenly. One of the Puss-Moths swerved badly to the left directly the pilot opened the throttle, then it came to a standstill and was pulled straight and got off all right. One of the bystanders remarked "Lady driver."—And it was.

There was practically no wind, but the start was down such wind as there was. Consequently few of the machines leapt off the ground. Most of the pilots in fact seemed to take off with a long run and a slow climb, obviously with the idea of saving time on the first stage of the course.

Lieut. Richardson, R.N., who flew such an extraordinarily fine race last year, and had bad luck this year, took off exactly over Feltham Church. He seemed to flatten out his climb just as he got over it and it looked exactly as if, being a good navigator, he intended to check his compass by the orientation of the church.

Young Mr. de Havilland pulled his machine off sooner than anybody else and seemed to climb more steeply, always excepting the big Vickers Vellore, on the scratch mark, which seemed to bounce off the ground as soon as ever the pilot opened up his Jupiter engines.

That machine would have had to do something over 150 m.p.h. over the full course to win. It cannot quite do that, but it is an amazingly fast freight-carrier and strikes one as being quite the most interesting of the big aeroplanes which have been produced in this country in the last twelve months.

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THE WINNER! KING'S CUP AND

AVRO

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SIDDELEY TROPHY

MISS WINIFRED BROWN

flying a standard Avro Avian, fitted with Cirrus III engine, beat 85 other competitors in the greatest Air Race of the year.

An Avro Avian with Genet Major engine was 5th, and another Avian with Cirrus III engine was 8th.

The quality of Avro manufacture again proves itself under the most testing conditions.

CIRRUS AVIAN

THE PRICES OF THE AVIAN IN ENGLAND ARE FROM £575

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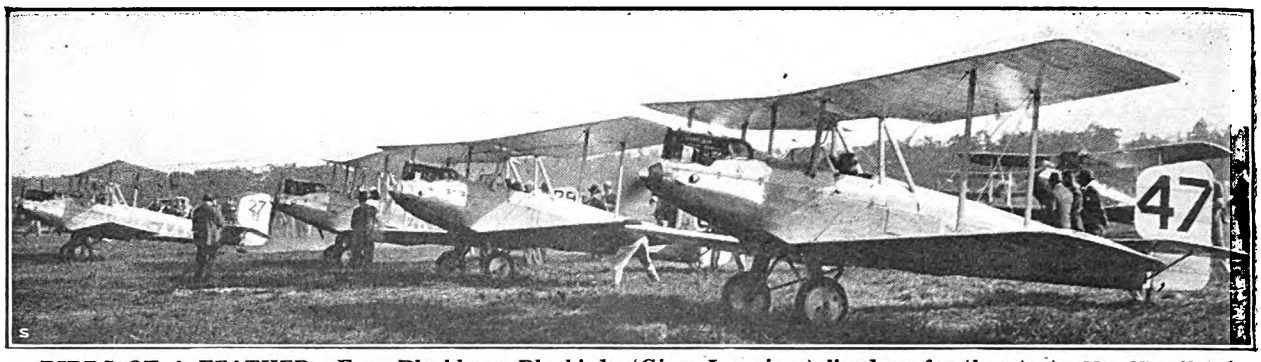

BIRDS OF A FEATHER.—Four Blackburn Bluebirds (Gipsy I engines) lined up for the start. No. 27, piloted by Flt. Lt. G. G. H. du Boulay, is just leaving.—(*"Aeroplane" photograph.*)

airscrew. A Spartan mechanic promptly took off the left upper aileron of the machine and fitted it in place of the right lower aileron. So. Mr. Gibbons gaily covered the rest of the course without any ailerons to his upper planes.—Which is an example of the uses of interchangeability.

Mr. Cantrill in the Avian Sports entered by Mr. Wallace Barr came down at Slimbridge about fourteen miles South of Gloucester owing to something obscure stopping his engine. Flt. Lt. John Oliver, in the sister machine entered by Lady Wakefield, who was flying almost alongside him, had exactly the same thing happen to him a minute or so afterwards. Mr. Cantrill made a skilful approach with a dead engine over and between large trees and a church, but had the misfortune to hit a ridge at the end of his run and turned gently over. Flt. Lt. Oliver had better luck and although he was only at a height of about 70 feet when his engine died he found himself with a clear field immediately in front of him and landed without damage.

R.Ae.C. Luck.

The Royal Aero Club were extraordinarily lucky in their weather. On Friday a cricket match at Manchester had been stopped by rain, and at dawn on the day of the race visibility at Castle Bromwich was 200 yards. Yet after the sun rose visibility was perfect all over the country except for the usual smoke-haze over the Northern industrial cities.

That infallible weather prophet Capt. Entwistle of the Air Ministry, was perfectly happy about the weather before the start. He advised flying at 1,000 ft. to Hamble and at 3,000 the rest of the way North so as to catch a 15 m.p.h. South wind at that height.

Incidentally he told one rather an interesting thing in connection with the lift given by clouds,—a phenomenon which seems only to have been discovered in this country since our German gliding guests came here. He said that the other day Mr. Horsey of Imperial Airways, crossing the Channel with a loaded Argosy, found that the machine was climbing under a big cumulus cloud without his asking it to do so. He throttled down his engines to see what would happen, and went up 2,000 feet without any help at all from the engines. The Argosy hardly strikes one as being a competitor with Herr Kronfeld's *Wien* sail-plane, so the experience is interesting.

One of the most emotioning features of the start was the fact that immediately behind the row of petrol-pumps on the aerodrome, each carefully labelled "No Smoking," were placed (A) the Press Tent; (B) The Aero Club Totalisator, and (C) Mr. Harold Perrin's office. And everybody in each smoked all the day.

The Afternoon.

On Saturday afternoon while the assembling and assembled crowd were waiting for the finish of the King's Cup Race, various people flew to entertain the spectators,—but there is very little to describe because in these days one "pageant" or "display" is almost exactly like another. And the way in which every little exhibition of flying by standard type machines is called a pageant is becoming more than a trifle ridiculous.

One of the great programme features of Saturday afternoon at Hanworth was a display by Captain René Fonck, who is a kind of French opposite number to the Canadian Lieut.-Col. Bishop, V.C. One arrived too late to see the exhibition, but as none of the earlier arrivals so much as mentioned it presumably it was entirely blameless.

Flt. Lt. Schofield did one of his usual beautiful displays in a Desoutter and later in a Moth. There was an interesting display of "banner-flying," a new form of aerial advertising developed in France with the help of the Blériot firm. One gathers that N.F.S. Ltd. have the British rights. But just why the first appearance of this form of advertising in England should be used to advertise Deauville, instead of some British product such as Dunlop, was not explained in the programme.

There were a few desultory attempts at balloon-bursting, most of which fared badly because the balloons were let up at the wrong time or the wrong place. But Mr. M. L. Bramson had the combined skill and luck to burst the whole bunch which was sent up as a target for him.

The R.A.F. officer who was advertised in the programme to do some crazy flying did not do so, wherein one considers he was wise. Whatever a serving officer may do for the amusement of himself and his friends may not so properly be done at a public show, except on Service occasions. However, the N.F.S. pilot who took his place acted the aerodrome clown quite adequately. And Mr. John Tranum descended with his usual accuracy by parachute.

After that Miss Winifred Brown and Mr. Addams headed a procession which lasted for another couple of hours. And lastly, at what is commonly, journalistically, and wrongfully, called the psychological moment, Mr. Sidney St. Barbe went up and wrote BASS in large letters in the hitherto immaculate evening sky. The resultant psychological momentum was remarkable.—C. G. G.

[Post Scriptum:—On Sunday a very pleasant lunch-party was given at Heston Air Park by Henly's Ltd.—who are agents for the Avian—to Miss Brown and Mr. Addams, and about forty guests. It was a last-moment arrangement and its success was a credit to Miss Slade, of Airworks Ltd., and Mr. Allen of Henly's Ltd., who arranged it.—C. G. G.]

JUST OFF.—A Spartan biplane (Cirrus III engine), piloted by Lieut.-Col. L. A. Strange, D.S.O., M.C., a director of the Spartan Aircraft Co. Ltd., leaving Hanworth.—(*"Aeroplane" photograph.*)

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WORLD'S RECORDS by ARMSTRONG SIDDELEY

SPEED 134·3 m.p.h.

Class C. First category Light Aircraft up to 400 Kgs. 2-seater, Aircraft D.18 of the Darmstadt Flying Academy with 100-110 h.p. Armstrong Siddeley Genet Major engine, on the 23rd April, 1930, at Darmstadt; 214.848 Kms. (134.3 miles) per hour over 100 Kms. (62.5 miles).

HEIGHT 26,868 feet

Height Record by the Academical Flying Group, Darmstadt, on a 100-110 h.p. Genet Major engined D.18 aircraft, 8,142 metres (26,868 ft.).
Light aircraft, 3rd category (single-seaters weighing less than 350 Kgs), altitude (France), Albert monoplane, fitted with 80-88 h.p. Genet engine at Le Bourget, 11th February, 1930; 7,730 metres (25,509 ft.).
Class C. First category Light Aircraft up to 400 Kgs. 2-seater, Aircraft D.18 of the Darmstadt Flying Academy with 100-110 h.p. Armstrong Siddeley Genet Major engine, on the 21st April, 1930. at Darmstadt. Height 7,521 metres (24,819 ft.). Height Record for light water flying craft on 80-88 h.p. Genet engined Junkers Machine, single-seater 5,700 metres and 2-seater 4,700 metres (15,510 ft.).

ENDURANCE 1,553 miles

Light aeroplane, 3rd category, single-seaters, weight 200-350 Kgs. (440-770 lbs.), distance in a straight line, 17th July, 1929; D. S. Zimmerly, Barling, U.S.A., N.B.3 80-88 h.p. Genet, 2,500 Kms. (1,553 miles).

ARMSTRONG SIDDELEY MOTORS LIMITED

COVENTRY London: 10, Old Bond Street, W.1. ENGLAND

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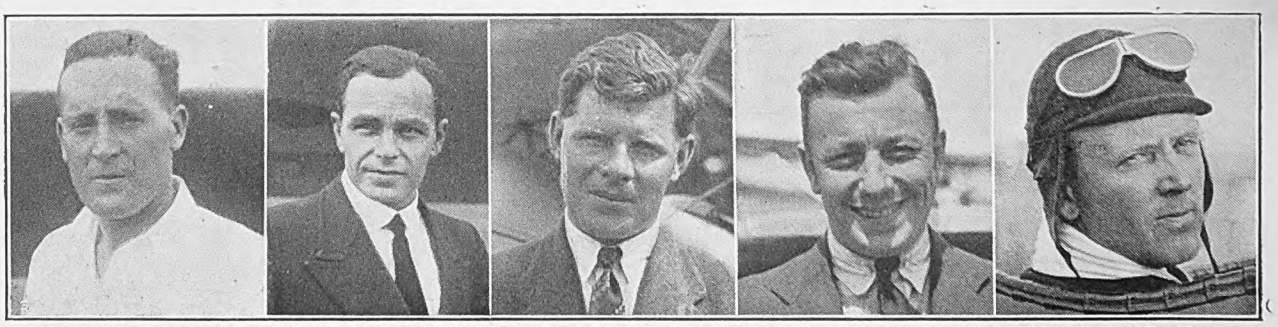
PILOTS IN THE KING'S CUP RACE.

Mr. Hubert Broad (Puss-Moth), Mr. J. Summers (Vickers Vellore), Flg. Off. H. H. Leech (Gipsy Moth), Flt. Lt. D. V. Carnegie (Gipsy-Moth), and Mr. A. C. M. Jackaman (Gipsy-Moth).

Sq. Ldr. J. W. Woodhouse (Gipsy-Bluebird), Sq. Ldr. D. S. Don (Tomtit), Flt. Lt. J. Oliver (Avian Sports), Lieut. Caspar John, R.N. (Cirrus-Avian), Lieut.-Cdr. Glen Kidston, R.N. (Puss-Moth).

Mr. W. H. Dudley (Spartan-Arrow), Flt. Lt. J. R. Addams (Spartan Arrow), Flg. Off. J. F. X. McKenna (Spartan), Flt. Lt. F. G. Gibbons (Spartan), Capt. H. H. Balfour (Spartan Arrow).

Sq. Ldr. J. L. N. Bennett-Baggs (Avro Trainer), Flt. Lt. J. F. T. Barrett (Redwing), Flt. Lt. T. B. Bruce (Cirrus-Avian), Flt. Lt. G. H. Stainforth and Flt. Lt. R. L. R. Atcherley (Segrave Meteor).



Mr. C. D. Barnard and Sq. Ldr. Bert Hinkler (Puss-Moth), Mr. F. G. Miles (Genet-Martlet), Mr. A. L. Mortimer (Robin), Col. The Master of Sempill (Gipsy-Bluebird).

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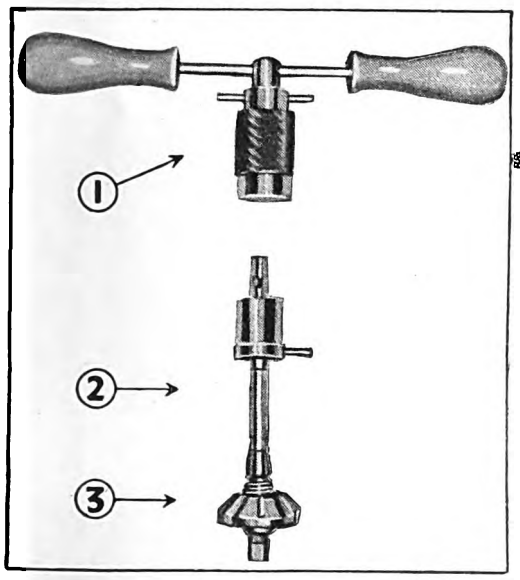

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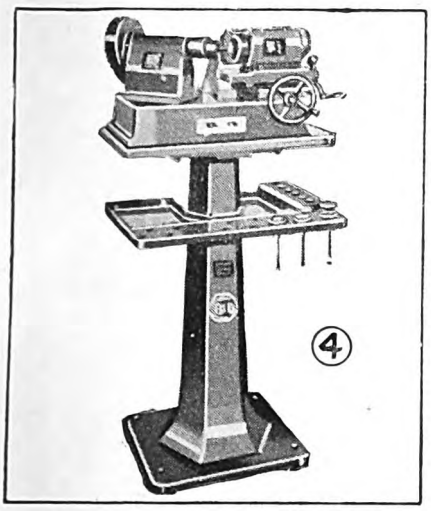

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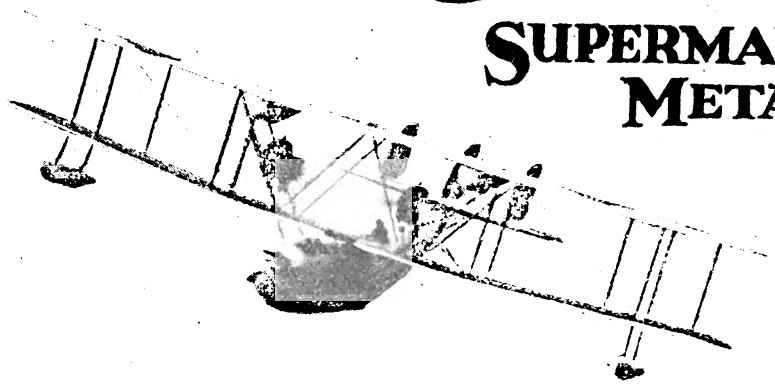

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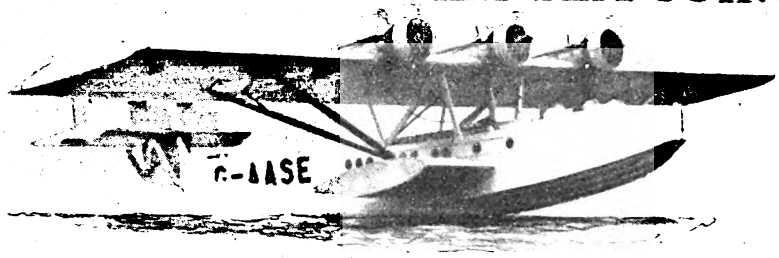

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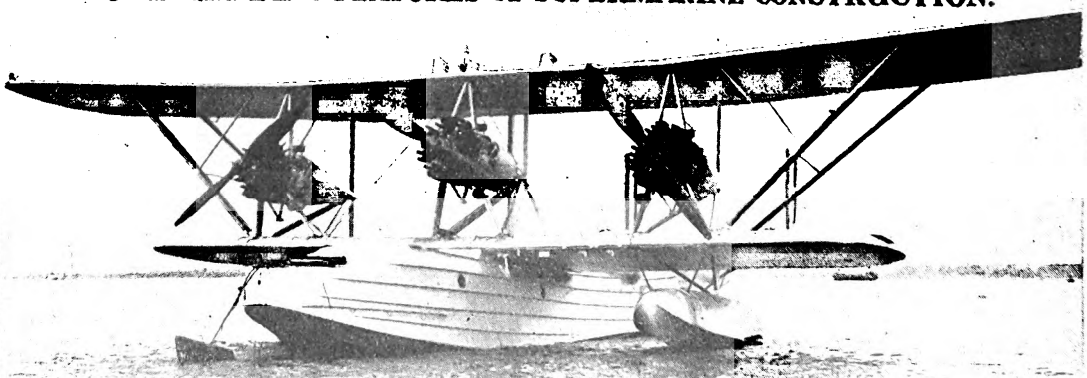

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PILOTS IN THE KING'S CUP RACE.

Mr. H. T. Andrews (Spartan), Lieut.-Col. L. A. Strange (Spartan), Mr. E. W. Percival (Hendy 302), Mr. S. A. Thorn (Hermes-Avian), Mr. W. H. Sutcliffe (Cirrus-Moth).

Capt. G. de Havilland (Puss-Moth), Mr. A. S. Butler (Gipsy-Moth), Sq. Ldr. the Rt. Hon. F. E. Guest (Tomtit), Mr. C. B. Wilson (Gipsy-Desoutter), Flt. Lt. T. Rose (Hermes-Bluebird).

Mr. H. N. St. V. Norman (Gipsy-Moth), Mr. T. N. Stack (Avian monoplane), Mr. W. L. Hope (Gipsy-Moth), Lieut. L. G. Richardson, R.N. (Cirrus-Moth), Major C. M. Pickthorn (Gipsy-Moth).

THE LARGEST COMPETITOR.—The Vickers Vellore freight carrier (two Bristol Jupiter XI engines), piloted by Mr. J. Summers, starting from scratch. This was the largest as well as the last competitor to leave.
—("*Aeroplane*" *photograph.*)

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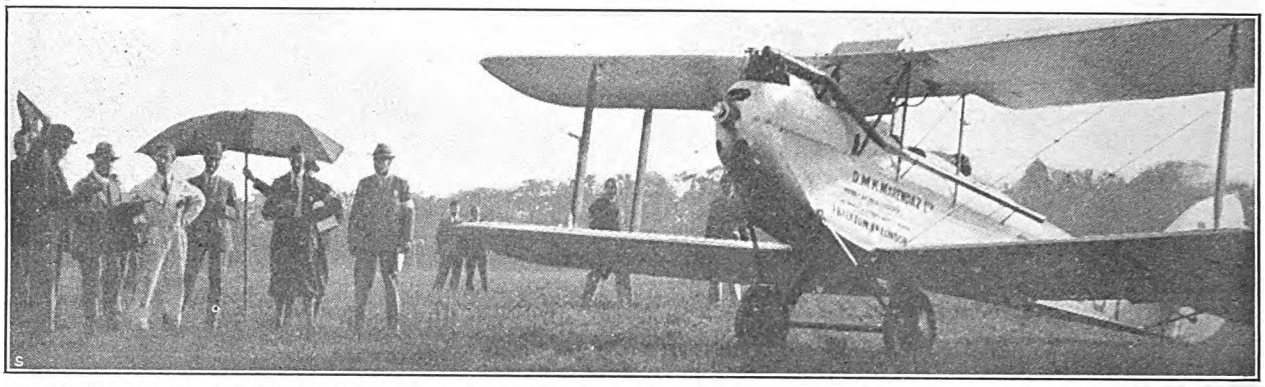
THE KING'S CUP RACE—FROM HANWORTH.

SEEN BY F. D. BRADBROOKE.



THE FIRST OFF THE MARK.—The D.H. Moth (Cirrus I engine), piloted by Mr. W. H. Sutcliffe, awaiting the fall of the flag.—(*"Aeroplane" photograph.*)

"Up rose the golden morning—" and with it up rose the limit men with their entourage of mechanics, friends and backers. It really was a dawn worthy of "the proud Ides, when the squadron rides," and several virile souls who came by air to be in at the start confirmed one's impression that there can be no more glorious time to fly.

The group which saw Mr. Sutcliffe lead away in Mr. D. M. K. Marendaz's ancient Moth (Cirrus I) was drab compared with that which gathered in colour and size from then on. Mostly dutiful males with marshal's brassards, stop-watches, or other heavy responsibility. But it was still dawn, socially speaking, when the ladies began to add brilliance to the scene by coming to fly, be flown, or see their friends fly away in the big event. The annual classic which His Majesty has inspired and his sons have supported with entries would be justified if it only made for more of that early rising "which is both healthful and good husbandry."

The limit machine gave no external presage of great speed, but Mr. Marendaz can be very persuasive if left alone with an engine for a time, and many were inclined to regard his entry as a dark horse, especially after he had got to Bristol in fast time. In fact, there was scarcely a competitor who was not, at some time or other, suggested to one as a good chance on the totalisator, except perhaps the ultimate winner.

Flt. Lieut. Barrett was generally adjudged to be adding a lot to his head resistance by smoking a large pipe as he took off in the Robinson Redwing.

The next one, the Robin, took a very long run, as if the engine were not pulling its best, and later was forced down near Salisbury. [As the pilot's view is mostly unnoticeable, perhaps it was as well,—seeing how congested the Northern aerodromes were.—C. G. G.]

It was a great disappointment to everybody to hear that both the Comper Swifts were non-starters. The Pobjoy is more or less a new engine, especially in its partnership with the Swift, and some snags were to be expected, but a misfortune with a big end-bearing also put out the Scorpion model. The Swift has done well enough in demonstration to have raised some hopes for its racing ability. No one was more disappointed than Mr. Gerard Fane, the prospective pilot of the Swift-Pobjoy, who was a disconsolate looker-on while others started.

Soon the Bluebirds came out in flocks, with Squadron Leader Ridley, of Auto Auctions, on hand to help them preen their plumage. Sq. Ldr. Slatter had a little trouble with his engine, and taxied up to the line at the last moment alongside Mr. John Gillan and both mistook the starting signal. They were recalled and taxied in brisk circles on the ground, scattering the spectators, back into position, and eventually got well away.

Just before, Miss Winifred Brown had taken off with her fiancé Mr. V. R. Addams as passenger, and one heard the remark that her old Avian with hardly a modification had not got much of a show in the handicapping. Such are the chances of war! [It had a brand new Cirrus III fitted a week or so before the race. Which may have had something to do with it.—C. G. G.]

For half an hour after that the procession consisted largely of Moths, mostly with Gipsy engines, and some with various degrees of stream lining. Interspersed among them were the three Widgeons piloted by Messrs. Napier, Cazalet and "Wellworth," and the last, with his faithful Genet sticking to the nose of the machine almost as fortuitously as the Jupiter hung on the nose of the *Spider*. He was rumoured to be getting some nine more m.p.h. than his handicap calculated for,—however.

Flt. Lt. T. B. Bruce was flying the very old Avian (Cirrus III) belonging to the Royal Aircraft Establishment Aero Club, in which the engine is mounted very high and the lines of the body curved up to it in almost "Faireylike" sort.

Among the unaltered Moths were those of Capt. R. Douglas, of the Aero Club of South Africa, the only representative from that land, and Lt.-Col. Hamilton Gault, D.S.O. etc., (M.P. for Taunton), the first Commanding Officer of that famous Canadian regiment, Princess

A PRINCELY GESTURE.—The Hawker Tomtit (Armstrong Siddeley Mongoose), entered by H.R.H. the Prince of Wales, starting from Hanworth, piloted by Sq. Ldr. Don in the front seat.

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KING'S CUP AIR RACE

& the SIDDELEY TROPHY

again won on

1st Miss W. S. BROWN (AVRO AVIAN CIRRUS III) AND THE SIDDELEY TROPHY

2nd Mr. A. S. BUTLER (D.H. MOTH GIPSY II)

3rd Flight-Lt. WAGHORN (BLACKBURN BLUEBIRD GIPSY I)

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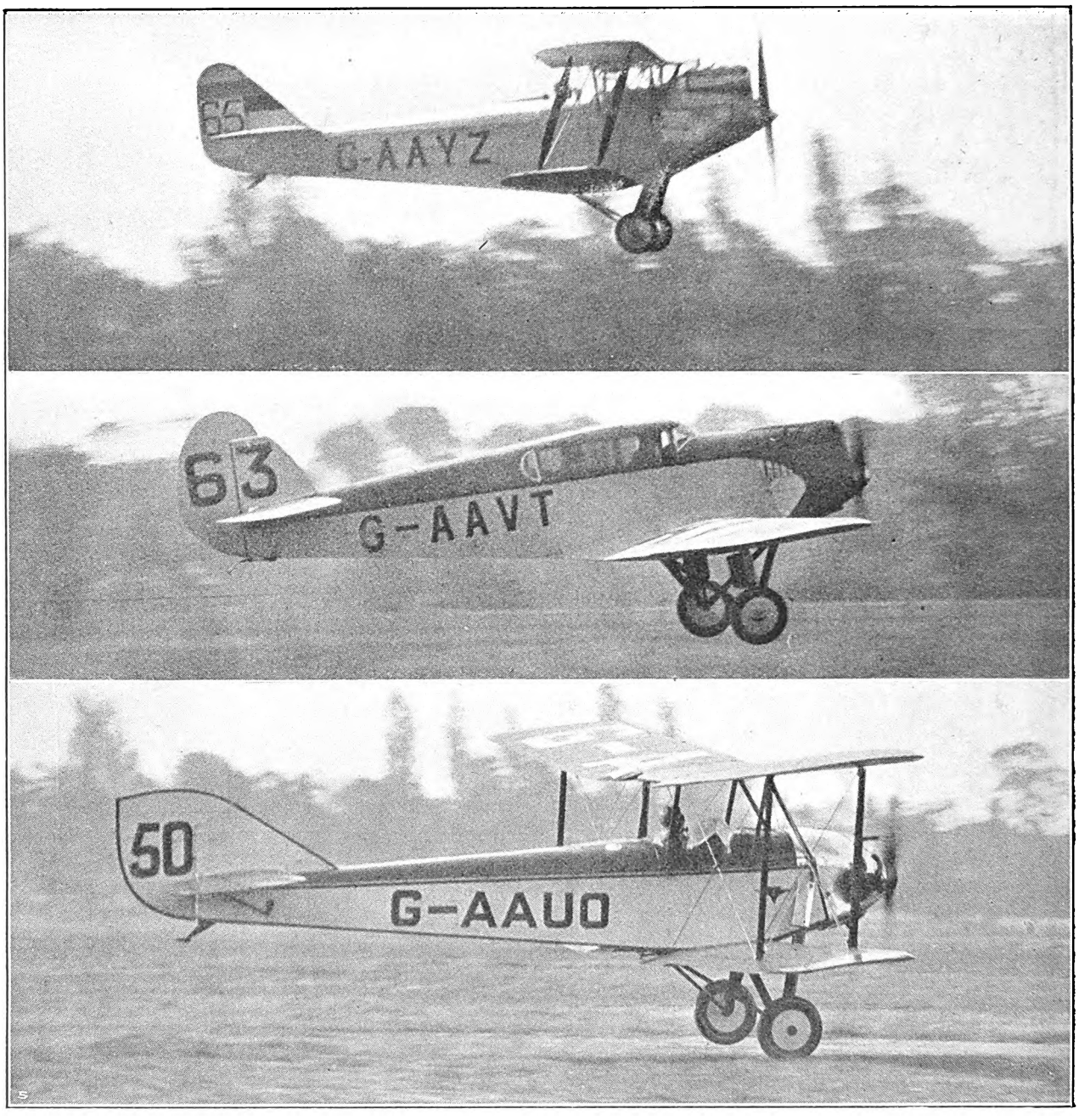

STARTING.—From top to bottom: Miss Winifred Spooner in the Southern Martlet (Gipsy II), Mr. E. W. Percival in the Hendy 302 (Hermes), and Flt. Lt. J. F. T. Barrett in the Robinson Redwing (A.B.C. Hornet).
—("Aeroplane" photographs.)

Patricia's Canadian Light Infantry. He learned to fly in England quite recently.

After the spate of Moths Flt. Lt. Tom Rose took off in the last of the Bluebirds, inaptly called *King Cobra,* though perhaps the hood almost all over the cockpit explained the joke. The famous side-by-side cockpit was all covered in, and the pilot's head protruded through a hole between a tiny windscreen and some occipital streamlining.

Then came Mr. Miles on a Martlet (Genet), which looked and flew very well.

The first of the Desoutters (Hermes), with Mr. P. E. G. Sayer, was given about a minute and a half on Lady Bailey whose Moth (Gipsy I) appeared to have little streamlining except to the petrol tank. With Mr. Sayer went the second M.P. in the race, Capt. H. H. Balfour, who flew a Spartan Arrow (Gipsy II).

Mr. Pope, in the Avro V, lost one of his Genet Majors on starting, but was quickly on his way.

More Moths, of the somewhat "hotted up" kind, followed in the hands of Squadron Leader Whistler, Mr. and Mrs. Chalmers, Geoffrey de Havilland, Jr., John D. Irving (of Newcastle) and F. A. I. Muntz. In this batch came also the Avro Trainer with Mr. Bennett-Baggs, the Desoutter II (Gipsy III) and several Avian Sports (Hermes).

The last of the Moths was entered by Mrs. Alan S. Butler. Mr. Butler had entered a Hawk Moth, and each paid the compliment of piloting the other's entry. Mr. Butler took off in a practically unrecognisable Gipsy Moth, of which the tank and centre-section had been quite rebuilt and which was carefully faired off everywhere. Mr. Butler's passenger, navigator, engineer or mechanic, travelled contentedly "under glass" in the front. On the same mark was Mr. Thorn of Cirrus Engines Ltd. in his familiar Avian (Hermes) entered by Capt. F. W. Ewart Morgan.

From this point the machines were definitely of the fast order. Prince George's Hawk Moth (which was highly fancied on its handicap, by the way), the two Hawker Tomtits entered by the Prince of Wales and Sq. Ldr. the Rt. Hon. F. E. Guest; Mr. Hope's famous Moth, which he elected to fly at the last minute rather than the Puss Moth which he had also entered. Miss Winifred Spooner shot away in what looked like a highly tricky Martlet (Gipsy II), followed by seven Puss Moths. In one was Miss Diana Guest whose curvilinear take-off aroused some excitement, Mr. Hubert Broad in a fairly tame vehicle for once, and then Mrs. Butler whose companion was Miss Sale-Barker, who was discovered by, and has since vindicated, the Reid Aptitude Indicator,—between them they put up a very fine performance, and flew into fourth place. Capt. de Havilland left off the same mark.

On the day of the King's Cup race it would have been quite impossible to muster a quorum of De Havilland Aircraft Co. Ltd. directors. They, with their wives and children, would have been found piloting their several machines somewhere along the course.

The last four away were two Avro Avian monoplanes and two twin-engined machines. The Avian with a Genet

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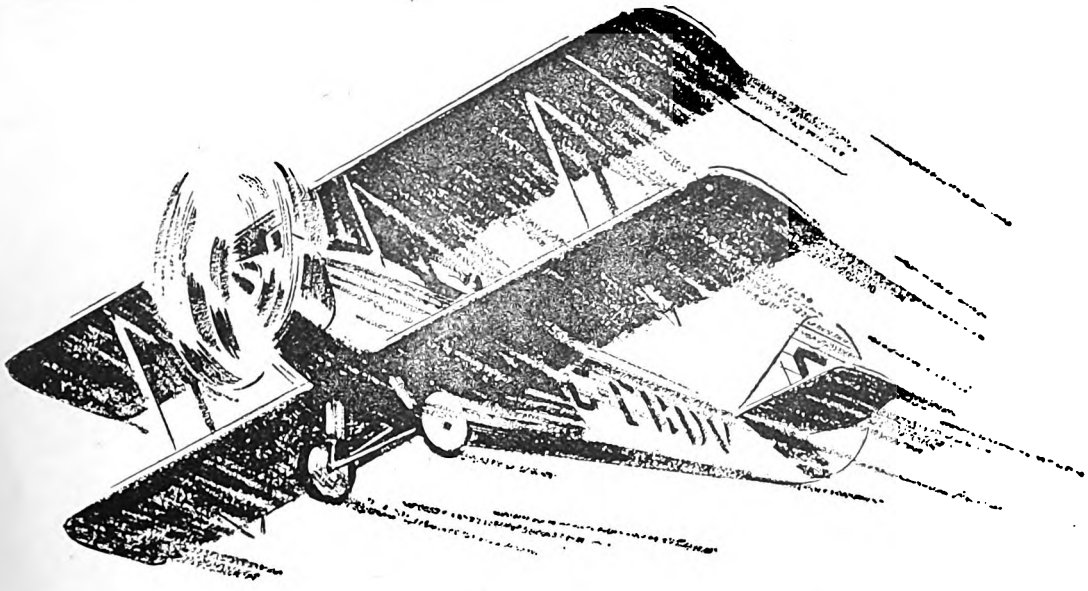

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1924	Mr. A. J. Cobham	,,	D.H. 50
1926	Capt. H. S. Broad	,,	D.H. 60 "Moth"
1927	Mr. W. L. Hope	,,	D.H. "Moth"
1928	Mr. W. L. Hope	,,	D.H. "Moth" G
1929	Flying Officer R. L. R. Atcherley	,,	Gloster "Grebe"

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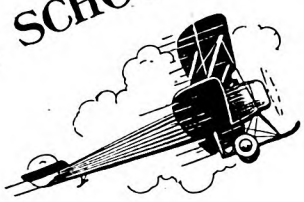

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"The Jupiter has now been the most popula

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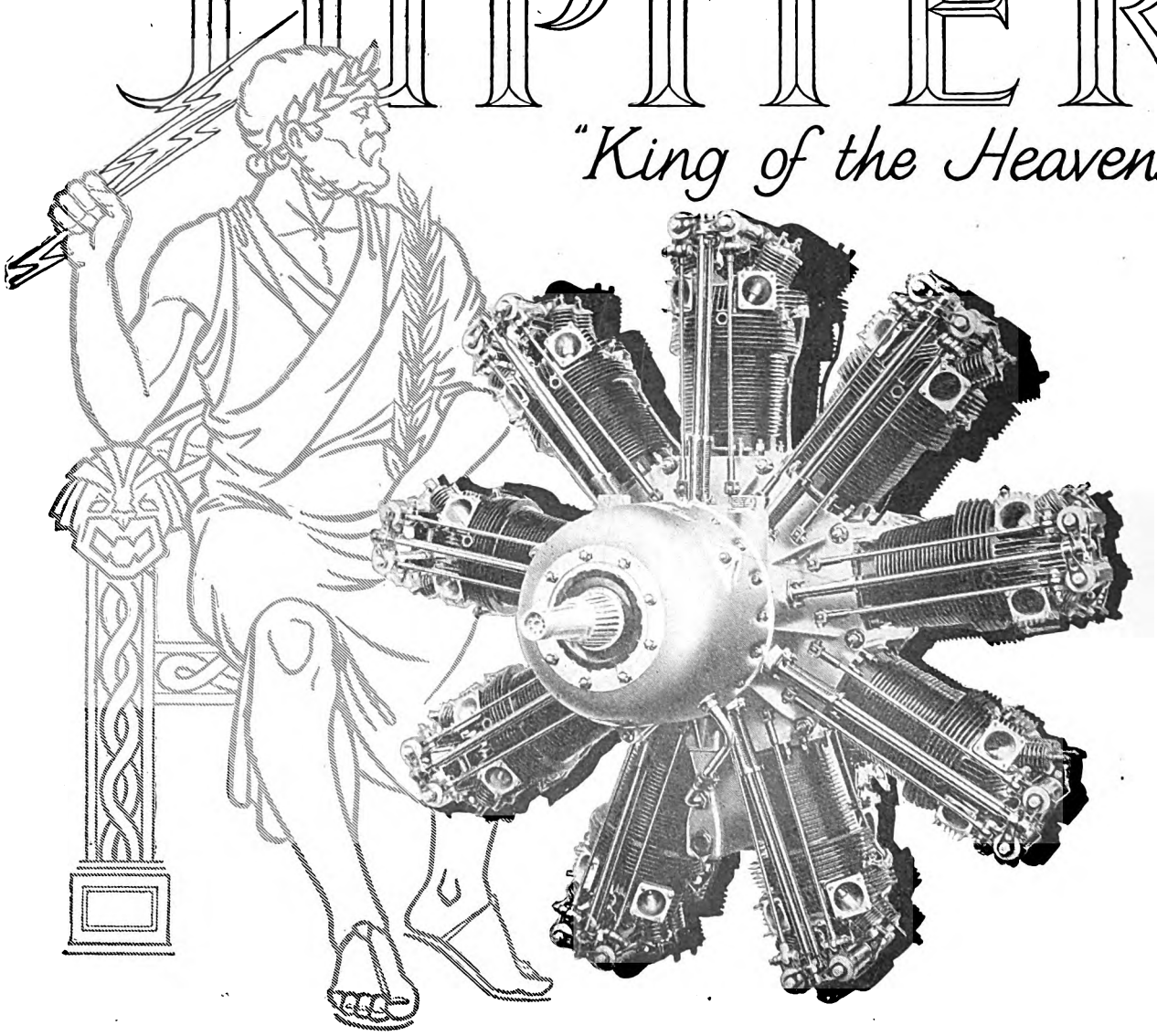
"King of the Heavens"



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at Newcastle. Miss Brown got proper attention by the simple expedient of arriving first and being first served.

Not long after Mr. Butler came Flt. Lt. Waghorn in his Bluebird, and so made up a very good representative finish as far as types go. Mrs. Butler landed her Puss Moth soon after, then came the Genet-Major Avian, Flt. Lt. Rose in his reptilian Bluebird and Flt. Lt. Fielden in the Hawk Moth. Then the field arrived in droves and coveys.

When one left 63 had already arrived, which is a very fair proportion out of 88 starters and 101 total entries. The Vellore thundered over the lawn just as Sir Philip Sassoon, Chairman of the Royal Aero Club, was presenting to Miss Brown the King's Cup, and also the Siddeley Trophy.

The landing of competitors was too dangerous a process for even an annual event. As Hanworth is really two (or four) aerodromes the homing pilots should have been told to land on the one which was not being used as the finishing straight. A right turn after crossing the line would have got them clear of the race-course to land how and where they would, but all turned left, and landed where droves of machines were coming in low at full throttle.

That would have been bad enough, but when there is no wind, and apparently no landing tee, it was worse still. There was hardly a possible angle or point of the compass that was not used by somebody when landing, and on several occasions this lack of unanimity on direction coincided with unanimity on time of landing.

But no one can deny that the race was an excellent day's sport all round, and most of the competitors with whom one spoke acclaimed it as such. The comparatively slow speed of the winning machine will not impress the uninitiated, and even the highest average recorded in the race is less than last year's, but that is amply explained by the new rule which bars obsolete military types, or anything but bona-fide civil machines.

THE BRISTOL CONTROL.

By C. L. Lukin.

The scene at the new Bristol City Airport, at Whitchurch, in the early hours of Saturday morning, was one of well-ordered activity, at least, until the first bunch of machines arrived, after which chaos seemed to reign for a while.

At 08.35 hrs. the first machine, a Mk. I Moth, flown by Mr. W. H. Sutcliffe, crossed the line. On landing he reported valve trouble, and also the presence of fog in the Salisbury area. This fog played havoc among a number of competitors, particularly those flying solo, in fact Capt. F. S. Symondson, who was flying a compass course, arrived nearly an hour late owing to drift and bad visibility.

Another wanderer was Flt. Lt. E. H. Fielden, who crossed the line diagonally from a southerly direction

Apart from the above the morning passed off without any untoward incidents, although some anxiety was felt at the non-arrival of the Segrave-Meteor, until news was received of Flt. Lt. Atcherley's bad luck, which was a great disappointment to many who had assembled at the control for the express purpose of seeing this machine.

Sq. Ldr. Bert Hinkler evidently found Mr. Roy Faulkner's Puss Moth a trifle on the noisy side, as there was a sharp rise in the St. John's Ambulance cotton-wool market shortly after his arrival. [If people *will* remove silencers, what can they expect?—Ed.]

A large party of the Bristol and Wessex members, headed by Mr. R. Ashley Hall, received the competitors at the Club-house, and entertained them in the best West-Country style.

Merlyn Motors Ltd., of Southampton, also made the most of the occasion with a display in their new showroom, which contained a light aeroplane, a smart speed-boat and an automobile, which gave one a good impression of their activities in three modes of transport.

AT BARTON—MANCHESTER.

By John Leeming.

"The tumult and the shouting dies, the Captains and the Kings depart."

Kipling's lines aptly describe the situation at Barton on Friday night. All day on Friday the final rush of preparation had proceeded feverishly, a week of hectic chaos, arrangements, alterations, alarms, and then late on Friday night everything in position, order, the organisation complete, ready for action. A great calm settled over Barton.

There had been various rumours and alarms about the aerodrome being "unsafe." In consequence Major Mealing came by air from London on Friday and after inspection wired to the R.Ae.C.: "Barton Aerodrome absolutely O.K." His report proved to be justified. There was no accident of any kind and no confusion.

If anyone doubted whether Manchester was air-minded their doubts would have been entirely removed on Saturday, July 5. People arrived by air, train, road and even by boat (Ship Canal). More than twenty thousand people paid for admission and twice that number saw the show from fields and banks outside the airport. In spite of exceptionally wide roads and entrances traffic became completely blocked. Two hundred police proved inadequate and the A.A. car-parking arrangements were simply swamped.

Fred Holmes became even more genial than usual and admitted that the "gate" had come up to his expectations. He even viewed with good-humoured tolerance the repeated calls for more men to man the entrances.

The first arrival by air was Sir Sefton Brancker, cutting in ahead of the competitors to see all arrangements were correct. Satisfied and approving, he was a great comfort to the writer—until just before he left.

The weather reports from the hills were bad, and Mr. Bentley in his "Shell" Moth had gone on to inspect the course over the Pennines. Just before he started Sir Sefton instructed the writer to hold the race up at Barton if the weather seemed too bad over the hills. "Use your own judgment," he said, tersely.

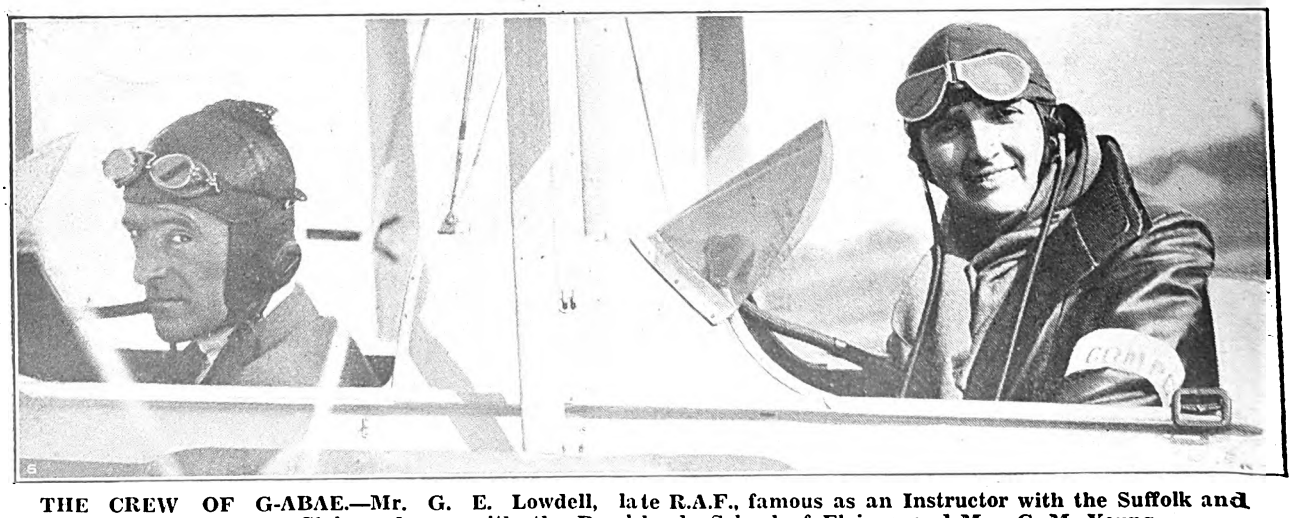
The writer, with visions of an aerodrome covered with the entire King's Cup competitors all demanding to be allowed to proceed, swallowed nervously and asked Sir Sefton to stay at Barton himself. But he went on to Newcastle.

In the end the three R.Ae.C. Stewards compiled a weather report and a statement that, in view of the conditions on the hills, pilots proceeded entirely at their own risk and had received warning of exceptionally bad weather ahead. Every pilot signed this—and every pilot went on.

The crowds increased steadily, the weather at Barton improved, Mr. Partner with his loud-speakers announced departures from Bristol, music filled the air, the Lord Mayor of Manchester arrived. The stage was set.

At 11.32 a speck appeared. No. 16, W. H. Sutcliffe, arrived, first competitor at Barton. There was a rousing welcome from everybody, and especially from the staff of The Berkshire Aviation Tours, because Mr. Sutcliffe was flying G-EBOT, a machine which had belonged originally to Miss O'Brien, and had been rebuilt by Berkshire Aviation Tours at Shrewsbury.

The second machine crossed the line a few moments later,



THE CREW OF G-ABAE.—Mr. G. E. Lowdell, late R.A.F., famous as an Instructor with the Suffolk and Eastern Counties Aero Club, and now with the Brooklands School of Flying; and Mrs. C. M. Young.

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and the third—Miss Brown—came after it leading a bunch of four. One of the most exciting finishes of the day, but also one which somewhat upset the Stewards and caused one of them to execute a brief but remarkable dance.

Miss Brown received a tremendous welcome, and even at this stage many felt this was Manchester's lucky day. Her father met her as the machine reached the petrol-filling station, and "Win." appeared quite unconcerned by the gloomy weather reports from the hills.

On the starting line later the nervous Steward urged her to remember the bad reports "Oh, I'm all right," she replied with a smile,—then, with a last handshake, she was ready. The starter's flag lifted, the engine quickened, down went the flag, and the machine was away. The winner of The King's Cup for 1930 had left Barton.

After Miss Brown had left machines arrived at such frequent intervals that the work became both hectic and absorbing, so that one saw little more of the race. Norman Blackburn, obviously thoroughly enjoying himself, encouraged certain officials with praise for the arrangements at Barton, and H. N. St. V. Norman (of Heston) thanked his assistants so profusely that they became insufferably conceited, and useless for further work that day.

It was noted that quite a large number of competitors seemed to be having trouble with their compasses, and many requested these should be "swung," a task impossible in the circumstances. No pilot admitted losing his way, however, but one was heard asking anxiously the way to Woodford.

Everyone seemed remarkably free from engine trouble. The only withdrawal at Barton was Flt. Lt. Pope, on the Avro V (starter trouble).

Major Loughborough, time-keeping at the finishing line, had a most strenuous time. He was assisted by C. S. Goodfellow, one of the three R.Ae.C. Stewards, and thanks to their excellent efforts their work was accomplished perfectly.

At the starting line Mr. Lumley (timekeeper) and Mr. A. N. Kingwill (R.Ae.C. Steward) reassured the querulous, tactfully smoothed difficulties, and sent machines off with great efficiency.

A tribute should be paid to the very excellent work of the A.A. Scouts in getting machines into position, and to the R.A.F. men of No. 5 F.T.S. (Sealand) for their strenuous work on wing tips. Several competitors expressed their appreciation to Mr. Ledlie, the official in charge.

Although elaborate precautions were taken to deal with any "crash" or outbreak of fire, the "Crash Tender" and Ambulance never left the tarmac, and the Fire Brigade's only effort was watering the ground in front of the enclosures to keep down dust.

It was unfortunate that two firemen, somewhat over-zealous, turned a hose too near one enclosure and very much annoyed certain prominent Corporation officials. The incident was obviously accidental, and one trusts that the harsh speeches on both sides are now regretted. [But *what* a chance for a Corporation employee!—ED.]

As soon as the last competitor had left a small Air Display, organised by Northern Air Lines Ltd., began. Mr. A. N. Kingwill did some unusually pretty stunting and "crazy" flying, while a Formation by Mr. Bonner, Mr. McKay, and Mr. Kingwill was up to the highest R.A.F. standards. There were numerous "ground" shows, such as bombing a car and various other features. And the thousands of air-minded Manchester people went away apparently well satisfied.

AT CRAMLINGTON.

BY ALAN GOODFELLOW.

Saturday Morning:—A clear, sunny day with a steady breeze from the West. A beautiful day—for the crowd which is already lining the enclosures—but not so beautiful for the pilots, who are going to have to land and take off directly into the line of the finishers.

After earnest thought the starting line is placed in the S.E. corner of the aerodrome. This will leave a big space for pilots to land close by the petrol stations and will minimise the risk of collisions on the ground. As to collisions in the air, everything depends upon the pilots and whether they cross the finishing line between 300 and 500 feet as requested.

1.30 *p.m.*:—The Handley Page of Aviation Tours is very busy and Mr. Kemp, instructor to the Newcastle Club, has just been giving a neat display of aerobatics to entertain the crowd. Now, however, Chief Marshal Turnbull closes down all flying and we sit listening to the wireless reports on the race and straining our eyes to the West.

2.8 *p.m.*:—Is it Sutcliffe or Vlasto? It is neither—and a great roar of appreciation sweeps up from 10,000 people as the old Avro Avian, G-EBVO, crosses the line and it is noticed that Miss Brown is leading in the great race and has probably already won the *Evening World* trophy.

A couple of minutes later and we see Waghorn's Bluebird in the North-West, flying well off its course. At last the pilot turns back towards the aerodrome, but the mistake has cost him over 5 minutes and, perhaps, the race.

A SPORTING ENTRY.—The Hawker Tomtit (Mongoose III A) which was entered and flown by Sq. Ldr. the Rt. Hon. F. E. Guest.—(*"Aeroplane" photograph.*)

At intervals of two minutes come P. A. Wills in a Moth and Lt. Caspar John in another Avian. Both cross the line low, land on the far side of the aerodrome, and taxi straight across the front of the starting line. We begin to wonder what will happen later on and to feel thankful that according to the wireless reports from Manchester there are only about 40 machines left in the race. (Oh! Manchester, how could you so deceive us?)

2.24 *p.m.*:—From this point onwards Cramlington became an airman's nightmare! Machines arriving incessantly in groups of three to five, converging from all points and crossing the line at all angles and at all heights down to 6 ft. In groups they landed on the far side of the aerodrome and still in groups they taxied furiously in front of the starting line, despite the frenzied efforts of the landing party.

At 2.48 p.m. Miss Brown took off, threading her way like a London taxi-driver through a traffic block. It was magnificent, but it ought never to have been necessary.

Of course the 40 minutes time allowance was chiefly the cause. Pilots knew that they were desperately short of time and the one thought in their minds after landing was to get to the refuelling depot as quickly as possible. Making all allowance for this, however, some of the low finishing and dangerous taxi-ing indicated a lack either of thought, or of imagination, or of sportsmanship.

It speaks volumes for the skill and good luck of everyone that there were no collisions and only two minor accidents. C. B. Wilson in the Desoutter II overshot a little and before his machine came to a standstill it struck a bad ridge in the corner of the aerodrome, smashing an undercarriage leg and putting him most unluckily out of the race.

Flt. Lt. Carnegie in a Gipsy Moth had engine trouble just after leaving the ground. He had to choose between risk-the lives of the crowd by using a nice thick hedge as a buffer. Wisely he chose the latter and biffed (or should it be buffed?) it most skilfully, thus proving the truth of the old saying—"you can tell a good pilot by his crashes."

In the midst of all this excitement a hitch occurred on the starting line. To err is human, and somehow or other a duplicate starting sheet went astray between the timekeeper and the starter. This happened at a typically hectic time when 17 machines were due out in less than 5 minutes and the result can be more easily imagined than described.

Heroic efforts by members of the Newcastle Club straightened things out, but inevitably some of the machines were delayed, the exact amount of each delay being wirelessed on to Hull for correction. [Hull couldn't correct its own mistakes, let alone Newcastle's.—C. G. G.]

The rear-guard provided a comic contrast, Summers, in the huge Vickers Vellore, being followed in by Stack in the tiny Avro Avian monoplane, to complete the total of 71 arrivals at Cramlington.

Stack had lost over 20 minutes spent at Woodford on cowling repairs, his face was black with oil and his chance was gone, but he was still smiling. So was Summers, who was apparently acting as a sort of tender for distressed pilots and picking up a passenger or two at each aerodrome!

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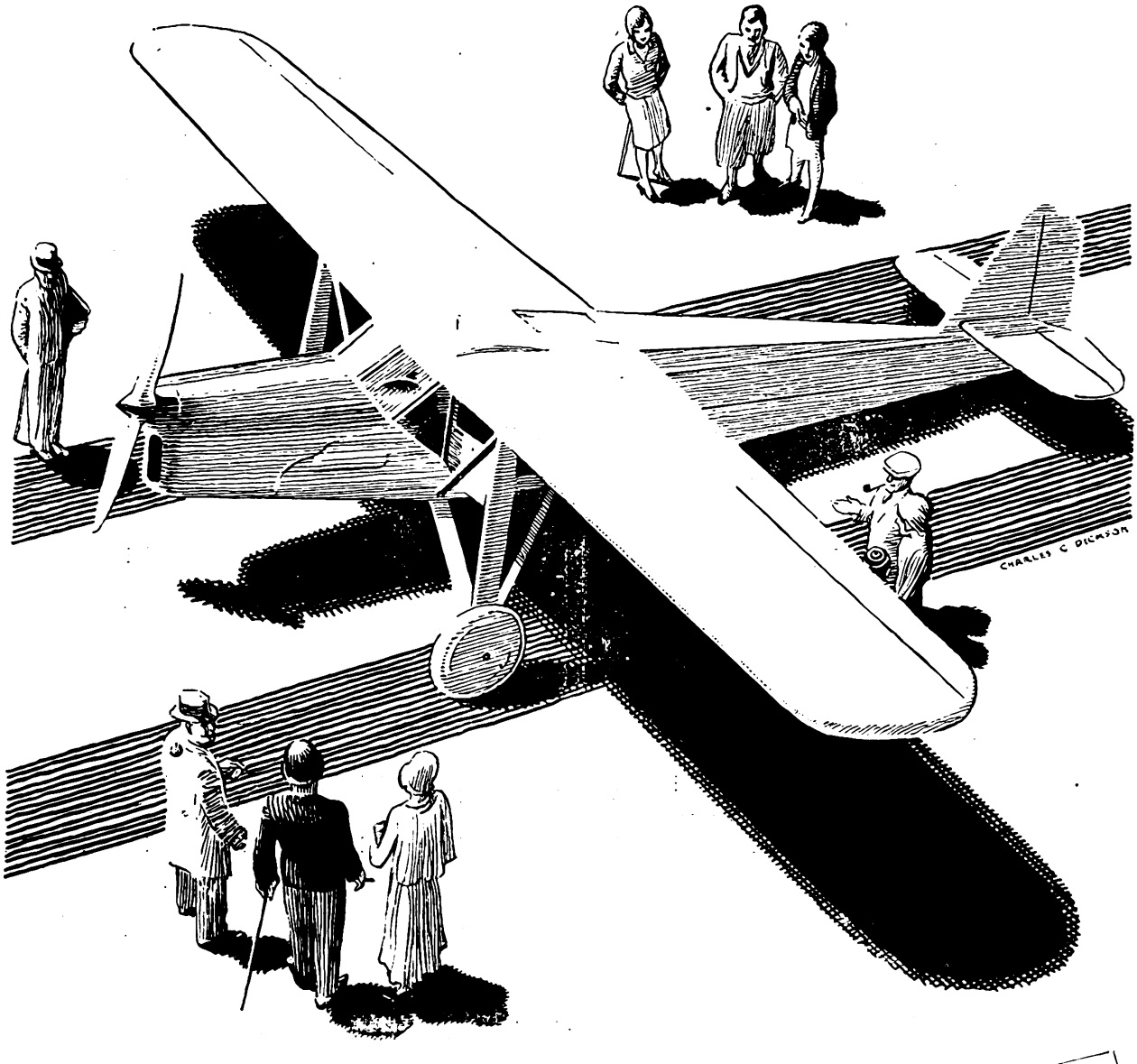

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KING'S CUP AIR RACE.

Racing No.	Registration Mark.	Entrant.	Pilot.	Aircraft and Engine.	Starting Time at Hanworth	Arrival Time at Bristol	Arrival Time at Manchester	Arrival Time at Newcastle	Arrival Time at Hull	Arrival Time at Hanworth	Net Time for Whole Course	Avge. Speed	Final Position
16	G-EBOT	D. M. K. Marendaz	W. H. Sutcliffe	Moth (Cirrus I)	07-00-00	08-32-29	11-31-41	[*Retired*]					
15	G-EBVD	A. G. Vlasto	G. Vlasto	Moth (Cirrus I)	07-19-28	08-53-00	11-46-47	[*Retired*]					
50	G-AAUO	P. G. Robinson	Fl.-Lt. J. F. T. Barrett ...	Redwing (Hornet)	07-34-39	09-16-55	12-14-06	[*Retired*]					
95	G-AAID	H. A. G. Howard	A. L. Mortimer	Robin (Scorpion)	07-37-35	[*Retired*]							
5	G-EBWU	Lieut. Caspar John, R.N. ...	Lieut. Caspar John, R.N. ...	Avian (Cirrus II)	07-54-31	09-17-21	11-57-45	14-21-09	16-15-01	18-54-56	8-20-25	90·31	**28**
54	G-EBOI	P. A. Wills	P. A. Wills	Moth (Cirrus II)	07-57-14	09-17-43	11-56-40	14-19-25	16-12-00	18-52-02	8-14-48	91·34	**25**
22	G-AABV	Norman Blackburn	Norman Blackburn	Bluebird (Gipsy I)	08-13-40	09-36-35	12-07-46	14-42-41	[*Retired*]				
100	G-EBXG	M. D. L. Scott	M. D. L. Scott	Moth (Cirrus II)	08-14-10	09-33-13	12-11-22	14-36-24	16-41-30	[*Retired*]			
27	G-AATO	Mrs. N. Holden	Fl.-Lt. G. G. H. Du Boulay ...	Bluebird (Gipsy I)	08-14-56	09-33-08	12-10-04	14-32-41	16-22-00	19-00-19	8-04-53	93·21	**33**
29	G-AAIR	Col. the Master of Sempill ...	Col. the Master of Sempill ...	Bluebird (Gipsy I)	08-14-56	09-35-43	12-15-08	14-46-09	[*Retired*]				
32	G-AATN	Robert McAlpine	Fl.-Lt. H. R. D. Waghorn ...	Bluebird (Gipsy I)	08-15-26	09-29-38	11-56-57	14-17-01	16-02-24	18-29-48	7-34-22	99·47	**3**
47	G-AAUW	Mrs. Robt. Blackburn	Fl.-Lt. H. V. Rowley	Bluebird (Gipsy I)	08-15-56	09-34-27	12-13-21	14-45-45	16-34-01	19-10-25	8-14-59	91·31	**42**
89	G-AAUU	Harold Peake	Sq.-Ldr. A. H. Orlebar ...	Bluebird (Gipsy I)	08-15-56	09-32-31	12-05-52	14-25-02	16-12-43	18-47-02	7-51-36	95·83	**20**
55	G-EBVZ	Miss W. Brown	Miss W. Brown	Avian (Cirrus III)	08-16-26	09-28-01	11-55-00	14-08-08	15-50-25	18-15-27	7-20-01	102·71	**1**
2	G-EBYV	I. R. Parker	I. R. Parker	Moth (Cirrus II)	08-17-55	09-36-41	12-13-18	14-44-37	16-34-09	19-30-13	8-32-18	88·22	**60**
8	G-EBQW	J. B. Buckley	J. B. Buckley	Moth (Cirrus III)	08-17-55	09-33-03	12-04-53	14-24-04	16-12-30	18-44-39	7-46-44	96·83	**16**
17	G-AAGN	J. de C. Ballardie	Lt.-Col. L. A. Strange	Spartan (Cirrus III)	08-25-14	09-40-44	12-13-47	14-40-40	16-31-50	[*Retired*]			
25	G-ABAZ	Sq.-Cdr. H. W. Woollett	Fl.-Off. McKenna	Spartan (Hermes)	08-29-56	09-43-27	12-11-20	14-24-49	16-08-53	18-47-21	7-37-25	98·80	**21**
28	G-AAVG	Marshal of the R.A.F. Lord Trenchard	Sq.-Ldr. L. A. Slatter	Bluebird (Hermes)	08-34-39	09-49-06	12-19-01	15-03-33	17-38-38	[*Retired*]			
30	G-AAOI	Sq.-Ldr. the Rt. Hon. Sir Phillip Sassoon	J. W. Gillan	Bluebird (Hermes)	08-34-39	09-50-51	12-21-00	14-48-00	16-35-30	19-09-11	7-54-32	95·24	**41**
39	G-AAEF	A. B. Ferguson	A. B. Ferguson	Moth (Gipsy I)	08-42-35	09-56-06	12-25-04	14-40-14	16-25-10	[*Retired*]			
49	G-ABAE	Mrs. C. M. Young	Mrs. C. M. Young	Moth (Gipsy I)	08-42-35	09-56-16	12-26-43	14-41-16	16-27-15	18-57-45	7-35-10	99·29	**30**
66	G-EBPQ	Lieut. L. G. Richardson, R.N. ...	Lieut. L. G. Richardson, R.N.	Moth (Cirrus III)	08-43-11	09-53-43	12-15-20	14-40-41	16-21-42	18-45-13	7-21-32	102·36	**17**
52	G-AAKI	Richard Ince	Richard Ince	Moth (Gipsy I)	08-43-11	10-00-41	12-35-49	14-59-21	16-48-18	19-23-50	8-00-09	94·13	**56**
60	G-AAEL	Fl.-Lt. D. V. Carnegie	Fl.-Lt. D. V. Carnegie	Moth (Gipsy I)	08-43-11	10-00-33	12-33-20	14-53-36	[*Retired*]				
14	G-AAWZ	W. A. Andrews	W. H. Dudley	Spartan Arrow (Gipsy I) ...	08-45-54	10-04-20	12-40-03	14-57-31	16-47-45	19-25-02	7-59-08	94·33	**58**
1	G-AARU	F. S. Symondson	F. S. Symondson	Moth (Gipsy I)	08-46-39	11-33-10	[*Retired*]						
101	G-AASG	O. F. Maclaren	G. A. Pennington	Moth (Gipsy I)	08-46-59	10-02-47	12-35-41	15-05-53	16-53-08	19-30-01	8-03-02	93·56	**59**
35	G-EBWT	W. L. Runciman	W. L. Runciman	Moth (Cirrus III)	08-49-10	10-01-53	12-29-11	14-45-46	16-29-52	18-59-18	7-30-08	100·40	**32**
40	G-AAMG	Fl.-Lt. F. G. Gibbons	Fl.-Lt. F. G. Gibbons	Spartan (Hermes)	08-50-14	10-04-14	12-32-21	14-45-35	16-30-30	[*Retired*]			
56	G-AALK	Sq.-Ldr. the Rt. Hon. F. E. Guest	Fl.-Off. H. Leech	Moth (Gipsy I)	08-50-49	10-01-39	12-28-40	14-40-35	16-24-20	19-02-00	7-30-41	100·28	**34**
6	G-AAWU	A. S. Preist	E. Fulford	Moth (Gipsy I)	08-50-49	10-03-49	12-31-41	14-45-46	16-30-04	18-59-11	7-27-52	100·91	**31**
7	G-AAEW	Derek Schreiber	Derek Schreiber	Moth (Gipsy I)	08-51-19	10-04-54	12-32-31	14-47-11	16-33-00	19-06-23	7-34-04	99·31	**40**
12	G-AAGA	Lt.-Col. A. Hamilton Gault ...	Lt.-Col. A. Hamilton Gault ...	Moth (Gipsy I)	08-51-19	10-05-42	12-35-19	15-00-03	16-53-00	19-24-00	7-52-41	95·61	**57**
93	G-AAVF	Wm. E. Rootes	Sq.-Ldr. J. W. Woodhouse ...	Bluebird (Gipsy II)	08-51-53	10-05-25	12-33-07	14-49-33	16-35-10	19-06-11	7-33-48	99·59	**39**
59	G-EBQN	P. N. G. Peters	Fl.-Lt. T. B. Bruce	Avian (Cirrus III)	08-51-53	10-02-06	12-27-00	14-35-44	16-15-40	18-39-33	7-06-40	105·92	**8**
83	G-AABS	R. H. Dobson	D. S. Green	Avian (Genet Major)	08-52-23	10-00-01	12-25-01	14-31-58	16-15-40	18-37-05	7-04-42	106·42	**5**
97	G-AAFH	George G. Parnall	"H. A. Presto" (Fl.-Lt. D. Bonham-Carter)	Elf (Hermes)	08-52-23	10-02-36	12-27-39	14-37-59	16-19-41	18-42-45	7-10-22	105·01	**15**
13	G-AABO	T. H. Naylor	T. H. Naylor	Moth (Gipsy I)	08-54-30	10-06-13	12-31-56	14-44-15	16-27-29	18-54-13	7-19-43	102·78	**27**
48	G-AAWY	Fl.-Lt. J. R. Addams	Fl.-Lt. J. R. Addams	Spartan-Arrow (Hermes) ...	08-54-30	10-11-28	12-42-45	[*Retired*]					
88	G-AAJO	G. P. Fairbairn	G. P. Fairbairn	Moth (Gipsy I)	08-55-33	10-12-06	12-30-40	15-05-53	16-50-14	19-19-06	7-43-33	97·50	**52**

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3	G-EBYZ	A. G. G. Marshall	A. G. G. Marshall	Moth (Gipsy I)	08-56-36	10-09-35	12-36-47	14-51-13	16-32-55	19-03-38	7-27-02	101·10	35
37	G-EBRQ	" J. Wellworth "	" J. Wellworth " ... ... (Sq.-Ldr. H. M. Probyn)	Widgeon (Genet III)	08-58-41	10-06-38	12-25-51	14-47-38	16-39-55	19-18-24	7-39-43	98·31	49
18	G-AADE	C. S. Napier	C. S. Napier	Widgeon (Gipsy I)	09-00-44	10-13-13	12-38-38	15-11-40	16-55-01	19-18-44	7-38-00	98·67	50
78	G-ABAI	R. Douglas...	R. Douglas	Moth (Gipsy I)	09-02-47	10-13-53	12-40-24	15-04-49	16-49-44	19-17-36	7-34-49	99·37	45
87	G-AAJS	I. C. Maxwell	I. C. Maxwell	Moth (Gipsy I)	09-03-47	10-17-47	12-46-53	[Retired]					
92	G-AADX	A. C. M. Jackaman	A. C. M. Jackaman	Moth (Gipsy I)	09-03-47	10-16-00	12-43-14	15-00-08	16-44-44	19-14-01	7-30-14	100·38	43
53	G-ABBA	Lord Wavertree	Fl.-Lt. J. B. Allen	Moth (Gipsy I)	09-04-48	10-15-08	12-39-51	14-48-53	16-29-40	18-52-32	7-07-42	105·67	26
82	G-AACV	Geoffrey Goodwin	Geoffrey Goodwin	Avian (Hermes)	09-04-48	10-16-21	12-43-30	[Retired]					
51	G-AAWR	C. M. Pickthorn	C. M. Pickthorn...	Moth (Gipsy I)	09-05-18	10-14-51	12-37-55	14-47-15	16-26-36	18-48-30	7-02-42	106·92	22
94	G-AAHI	H. N. St. V. Norman	H. N. St. V. Norman	Moth (Gipsy I)	09-05-48	10-19-00	12-45-15	15-00-23	16-42-07	19-05-05	7-19-17	102·88	38
21	G-AACC	Norman Blackburn	Fl.-Lt. T. Rose	Bluebird (Hermes)	09-05-48	10-12-16	12-30-10	14-41-00	16-19-06	18-37-19	6-51-31	109·82	6
98	G-AAVD	W. R. Westhead	F. G. Miles...	Martlet (Genet II)	09-08-47	10-19-40	12-45-32	[Retired]					
61	G-AAPY	C. B. Wilson	P. E. G. Sayer	Desoutter I (Hermes) ...	09-10-45	10-19-55	12-39-41	14-47-52	—	18-49-04	6-58-19	108·04	23
19	G-ABBE	H. H. Balfour	H. H. Balfour	Spartan-Arrow (Gipsy II) ...	09-10-45	10-24-20	12-52-05	15-05-23	16-50-02	19-20-36	7-29-51	100·46	54
23	G-AAEE	Hon. Lady Bailey	Hon. Lady Bailey	Moth (Gipsy I)	09-12-12	10-23-47	12-49-39	15-06-00	16-50-17	19-19-10	7-26-28	101·22	53
42	G-AATK	A. M. Desoutter	A. B. H. Youell	Desoutter I (Hermes) ...	09-12-42	10-19-15	[Retired]						
71	G-AASO	Sq.-Ldr. the Rt. Hon. Sir Phillip Sassoon	Fl.-Lt. S. L. G. Pope	Avro V (3-Genet-Major) ...	09-12-42	10-22-47	12-42-00	[Retired]					
67	G-EBRM	R. G. Cazalet	R. G. Cazalet	Widgeon (Hermes)	09-17-29	10-23-16	12-41-38	14-47-30	16-26-17	18-46-25	6-48-56	110·52	19
73	G-AAYG	Sq.-Ldr. H. A. Whistler	Sq.-Ldr. H. A. Whistler ...	Moth (Gipsy II)	09-19-22	10-28-07	12-49-12	15-01-50	16-44-50	19-05-02	7-05-40	106·17	37
46	G-AAYY	J. W. P. Chalmers	J. W. P. Chalmers	Moth (Gipsy II)	09-19-22	10-28-00	12-49-00	[Retired]					
70	G-AAKT	Roy Chadwick	J. L. N. Bennett Baggs ...	Avro-Trainer (Mongoose IIIA)	09-20-18	10-31-43	12-49-07	15-05-02	16-48-48	[Retired]			
75	G-AASL	G. de Havilland, Jr.	G. de Havilland, Jr.	Moth (Gipsy II)	09-24-00	10-33-07	12-53-56	15-02-00	16-48-30	19-18-57	7-14-57	103·91	51
24	G-AAGO	A. E. Chambers	H. T. Andrews	Spartan (Gipsy II)	09-32-58	10-41-02	13-02-41	15-10-15	16-55-58	19-18-04	7-05-06	106·32	47
58	G-AADA	J. D. Irving	J. D. Irving	Moth (Gipsy I)	09-34-43	10-41-44	12-58-02	15-02-21	16-48-40	19-03-55	6-44-42	111·67	36
68	G-AAZI	Lord Rothermere	C. B. Wilson	Desoutter II (Gipsy III) ...	09-48-09	10-17-20	12-59-33	15-19-45	[Retired]				
85	G-AAYU	A. J. A. Wallace Barr	J. C. Cantrill	Avian Sports (Hermes) ...	09-49-46	10-55-12	[Retired]						
91	G-AAWI	Lady Wakefield	Fl.-Lt. J. Oliver...	Avian Sports (Hermes) ...	09-52-58	10-56-05	[Retired]						
41	G-AAHJ	F. W. Ewart Morgan	S. A. Thorn	Avian (Hermes)	09-54-32	10-57-13	13-09-35	15-06-14	16-45-02	18-57-41	6-23-09	117·95	29
63	G-AAVT	Mrs. D. Lawley-Gibbs	E. W. Percival	Hendy 302 (Hermes)	09-57-39	10-55-15	12-53-54	15-13-34	16-44-55	18-49-35	6-11-56	121·51	24
76	G-AAXG	Mrs. A. S. Butler	A. S. Butler	Moth (Gipsy II)	09-59-11	10-56-23	13-01-10	14-53-54	16-23-35	18-27-38	5-48-27	129·70	2
74	G-AAUZ	H.R.H. The Prince George ...	Fl.-Lt. E. H. Fielden	Hawk-Moth (Lynx VI) ...	10-00-13	10-57-58	13-03-27	15-03-54	16-35-37	18-39-28	5-58-15	126·15	7
33	G-AALL	H.R.H. The Prince of Wales ...	Sq.-Ldr. D. S. Don	Tomtit (Mongoose IIIA) ...	10-00-43	10-59-53	13-10-27	15-05-43	16-39-30	18-46-24	6-00-43	123·42	18
57	G-ABAX	Sq.-Ldr. the Rt. Hon. F. E. Guest	Sq.-Ldr. the Rt. Hon. F. E. Guest	Tomtit (Mongoose IIIA) ...	10-00-43	10-59-51	13-05-46	15-01-32	16-35-25	18-40-44	6-00-01	125·53	12
44	G-AAHP	W. L. Hope	W. L. Hope	Moth (Gipsy II)	10-03-14	11-02-53	13-02-05	15-00-52	16-33-35	18-40-22	5-56-38	126·72	10
9	G-AAXW	Roy Faulkner	C. D. Barnard	Puss Moth (Gipsy III) ...	10-03-44	11-02-17	13-07-59	15-02-30	16-40-38	18-42-05	5-54-09	127·61	13
65	G-AAYZ	Sq.-Ldr. the Rt. Hon. F. E. Guest	Miss Spooner	Martlet (Gipsy II)	10-05-13	11-05-06	13-10-08	15-09-26	16-40-45	18-42-11	6-00-00	125·54	14
20	G-AAFA	M. H. Findlay	M. H. Findlay	Puss Moth (Gipsy III) ...	10-06-11	11-06-23	13-10-10	15-22-10	16-51-40	19-21-36	6-34-55	114·44	55
15	G-AAXT	Norman E. Holden	E. G. Hordern	Puss Moth (Gipsy III) ...	10-06-11	11-15-15	13-13-37	15-14-44	16-49-40	19-15-07	6-28-26	116·35	44
80	G-AAXZ	Lt.-Com. Elen Kidston, R.N. ...	Lt.-Com. Glen Kidston, R.N....	Puss Moth (Gipsy III) ...	10-06-41	11-04-04	13-09-26	15-03-16	16-36-30	18-40-40	5-53-59	127·67	11
86	G-AAZP	Miss D. C. Guest	Miss D. C. Guest	Puss Moth (Gipsy III) ...	10-06-41	11-06-59	13-35-46	[Retired]					
26	G-ABBH	Lord Wakefield	H. S. Broad	Puss Moth (Gipsy III) ...	10-06-55	11-05-10	13-10-06	15-03-15	16-36-04	18-39-40	5-52-15	128·30	9
77	G-AAXL	A. S. Butler	Mrs. A. S. Butler	Puss Moth (Gipsy III) ...	10-07-25	11-04-34	13-08-22	15-01-42	16-37-40	18-36-14	5-48-49	129·56	4
79	G-AAXO	Capt. G. de Havilland	Capt. G. de Havilland	Puss Moth (Gipsy III) ...	10-07-25	11-04-43	13-08-00	[Retired]					
84	G-AAYV	J. D. Siddeley	F. Tomkins	Avian Mono (Genet-Major) ...	10-09-36	11-10-25	13-18-17	[Retired]					
69	G-AAYW	Frank Hough	T. N. Stack	Avian Mono (Hermes) ...	10-20-49	11-18-51	13-24-35	14-22-24	17-12-57	19-18-19	6-17-30	119·72	48
10	G-AAXP	Andrew P. Holt	Fl.-Lt. R. L. R. Atcherley ...	Meteor (2-Gipsy III)	10-36-23	[Retired]							
13	G-AASW	Sir Robt. McLean	Fl.-Off. J. Summers	Velloe (2 Jupiter XI) ...	10-41-17	11-40-25	13-46-53	15-40-56	—	19-17-45	5-56-28	126·78	46

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Jr. A. S. Butler's Moth Special, fitted with a
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ECOND PLACE in the KING'S CUP RACE making

FASTEST SPEED

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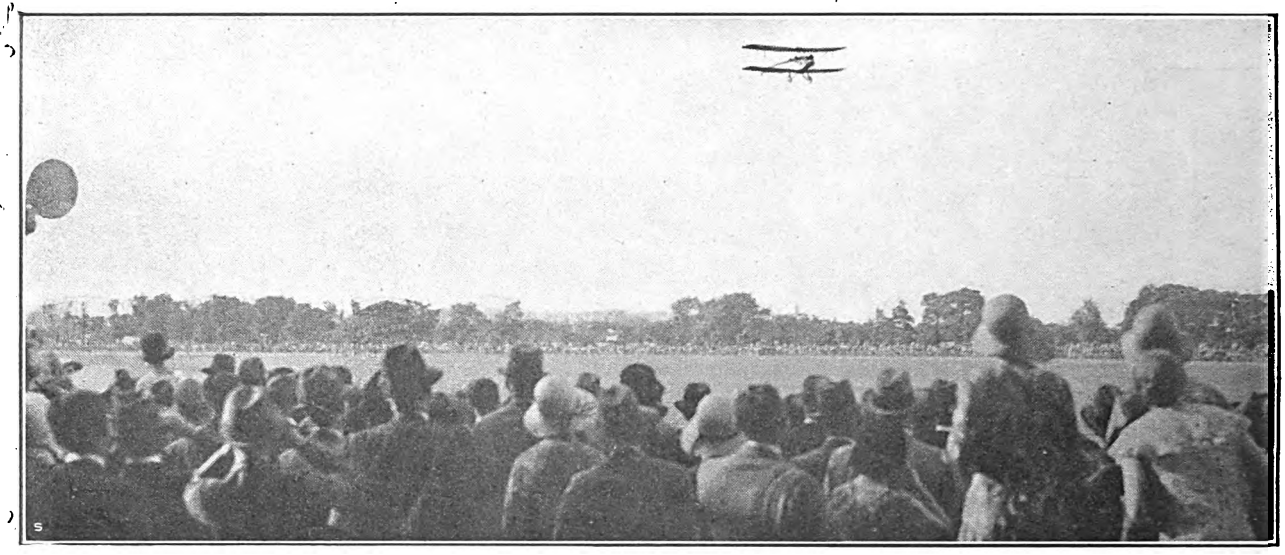


THE WINNER.—Miss Winifred Brown in her Avian (Cirrus III engine) crossing the line. —(*"Aeroplane" photograph.*)

So, like a two hours' whirlwind, passed the King's Cup Race of 1930. Strong men sank upon the grass in heaps and lethargy, from which they were hardly aroused even by the tactlessly triumphant wireless from Hull:—"Eleven machines report started late from Cramlington. *All* machines left Hull at correct time." [How did Hull come to think that?"—C. G. G.]

MIS-HAPPENINGS AT HULL.

BY THURSTON JAMES.

The last control in the Race for the King's Cup was at the Hull Municipal Aerodrome at Hedon. Talking of municipal aerodromes one can quite understand the desire of the local people to have an air port, the approach by train must have given Darwin his ideas about the survival of the fittest. The journey from the main line at Doncaster to Hull makes one long for some alternative form of transport,—say a bath chair with an auto-wheel attachment. In spite of this no liners of the air compete with the railroad, and how the writer regretted it!

Anyway, the train eventually stopped for the last time and a hullish taxi of decrepit appearance but amazing speed deposited one at Hedon where lunch in the club house and a subsequent stroll around gave one a chance to notice the attractive efficiency of the N.F.S. standard-type clubhouse and hangars. These are really good.

Arrangements had been made at Hedon to accommodate a big number of people. The aerodrome was set out with enclosures, car-parks, and generally was dolled-up with flags. There was the usual variety of wind-socks which all indicated their own local wind and therefore give everyone a suitable choice of wind-direction.

The crowd began to arrive as the afternoon drew on but there was little to attract them. True there was a Desoutter hard at work joy-riding. And Mr. Murray on G-AAXA gave a display of inverted flying. But as the programme (sold on the ground) announced that the first machine would arrive about one p.m. some arrangements ought to have been made to amuse the crowd. Apart from the loud-speaker arrangements and occasional announcements thereon one could find no attempt being made to tell the assembled hordes what was happening.

A board of modest dimensions was posted up outside the Club House where the mass of people could not see it, and as it was arranged in the order of starting, it was very hard to follow. One suggests in all humility that a gigantic board with six columns should be used at any future controls. This would allow for the start, controls and finish.

The order of arrival at each control should be indicated, with suitable intimation about who had definitely retired. This would make things more easily understandable by a potentially air-minded crowd.

Various odd Moths and Bluebirds landed at Hedon in the afternoon, and finally just before 15.00 hrs. a Desoutter G-AATX arrived with the Director of Civil Aviation on board. He said that conditions along the course were pretty good though there had been a bit of cloud in the Manchester direction in the morning. About the same time Mr. O. E. Simmonds of interchangeable wing fame arrived in another Desoutter to be ready for the Spartan contingent.

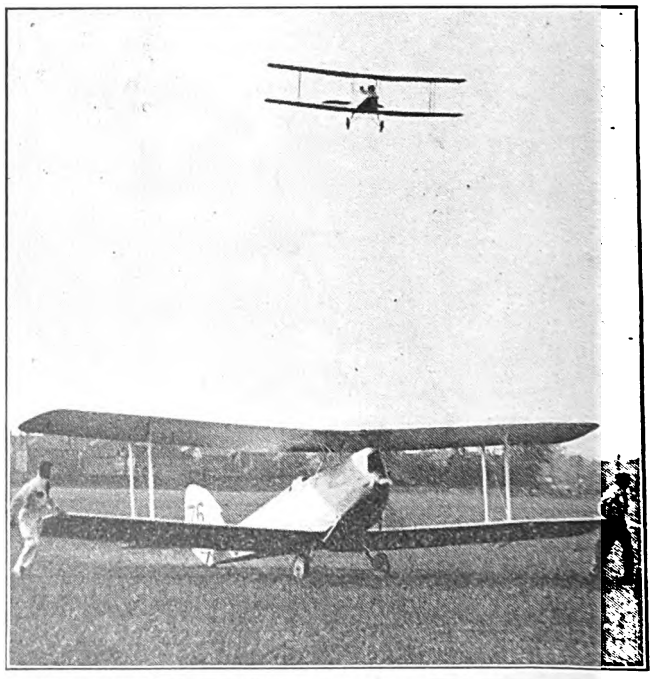
Just before 15.10 hrs. Mr. Murray took off in his Moth AAXA and gave a remarkably fine display of inverted flying. He did all his tricks so quietly and unflurriedly that it all looked far too easy. Mr. Murray flew around the aerodrome upside down, so that everybody in all the stands could have an equally close view. After being up for ten minutes and most of it upside down he landed to a noticeable lack of applause which struck one as unfortunate.

About 15.30 hrs the joy-riding Desoutter ceased from its labours and TX, the visiting Desoutter, took off with Sir Sefton Brancker. At about 15.54 hrs. the first competitor appeared and as by this time we all knew that Miss Brown was leading at Newcastle there was a certain amount of excitement to read the number and see whether Miss Brown still kept the lead. When we read 55 a cheer went up.

As soon as she had landed Miss Brown taxied straight to the petrol dumps. This started a frightful chase, for a fiat had gone forth that all machines on landing had to taxi up to the windward end of the aerodrome and then proceed in stately fashion along the enclosures to the petrol dumps at the other end. Which was so pleasant for pilots who wanted to preserve their engines and tail skids, and undercarriages and things.

The trouble was of course that, like the baby who saw the Pear's soap and wouldn't be happy till he got it, pilots on landing chased round and rushed for their favourite brand at top speed. Most of these wilful people were captured and led in triumph past the crowds.

Some nine minutes after the arrival of Miss Brown, a Bluebird came streaking in very low. This was Flt. Lt.



EARLY BIRDS.—Flt. Lt. H. R. D. Waghorn in a Bluebird (Gipsy I), who finished third, passing over the Moth (Gipsy II) which Mr. A. S. Butler flew into second place. —(*"Aeroplane" photograph.*)

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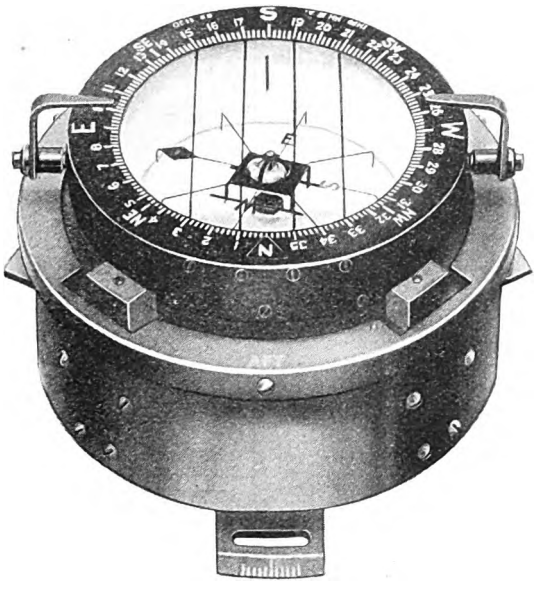
SMITH'S

KING'S CUP RACE



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Miss Winifred S. Brown's "Cirrus Avian" and the first ten machines to cross the line were equipped with

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H. R. D. Waghorn in his Gipsy Bluebird. This arrival created a lot of excitement, for the Bluebird is essentially a local product and everybody was keen to see the Blackburn machine put up a good show.

About six minutes after Flt. Lt. Waghorn, No. 25 dived down on the line. This was Flg. Off. McKenna in the three-seater Hermes Spartan. Then after three minutes came Mr. Buckley in his Cirrus Moth and at the same time arrived Sq. Ldr. Orlebar in his Gipsy Bluebird. Two minutes later came another bunch.

Mr. Butler arrived in his Gipsy Moth about 33 minutes after Miss Brown, and just as Miss Brown was starting off again, Mrs. Butler arrived in her Puss Moth.

From then onwards the air seemed to rain aircraft, the aerodrome filled up and up, the queues round the dumps stretched further and further into the field. Meanwhile the early arrivals were taking off from the other side of the field, where they were too far away for the people to distinguish the racing numbers without glasses.

The sight of these aerial hordes arriving from varying directions and at differing altitudes, landing and rushing for the dumps and evading their rightful places in the parade, and the early arrivals taking off, all became too complicated to keep track of. One even ceased to wonder why nothing hit anything,—though at least one machine damaged its ailerons when taxying-in, and delays occurred in getting to the starting line.

About 17.15 hrs. when the crush was considerably thinned, the Vellore arrived and took its place in the queue. At the same time Mr. Stack sped into the aerodrome in No. 69, the Avro Avian monoplane, from which he emerged with an extremely sooty countenance.

The last arrival was Sq. Ldr. Slatter in No. 28, who had had some trouble. Two other machines were also held up on the aerodrome, but in the end, 28 and the other two got themselves going and Hedon was deserted. All its visitors had left under their own power and there had been sixty-five of them.

THE SIDDELEY TROPHY.

Certain pilots in the King's Cup race competed, over the same course, and at the same time, for the Siddeley Challenge Trophy.

This Trophy is presented by Mr. J. D. Siddeley for competition among members of the Light Aeroplane Clubs.

To qualify for this Trophy the aircraft entered must be *bona fide* property of a Club, or of a member of a Club. The pilot must be a member of the Club. When privately-owned aircraft are flown the owner must be the pilot.

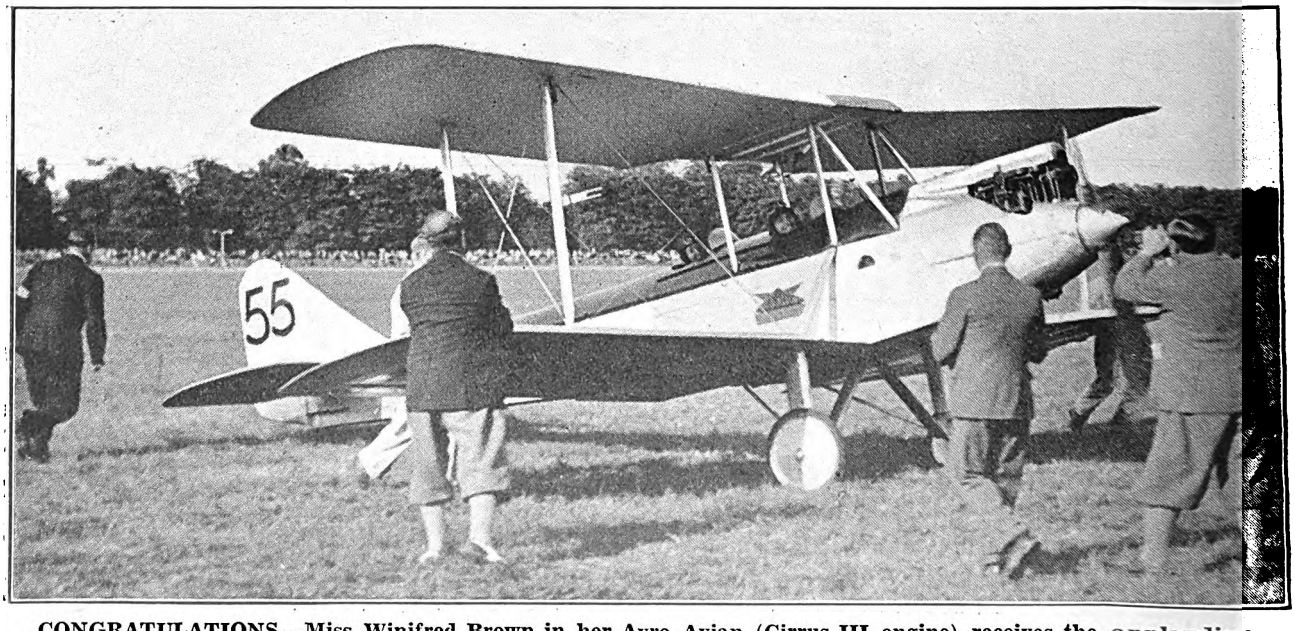
The following were the competitors in the King's Cup Race who competed for the Siddeley Trophy and they are shown in the order of their finish.

The winner of this Trophy also received a prize of £50 presented by Mr. M. H. Volk.

1. Miss Winifred Brown (Lancashire Club)—Avian (Cirrus).
2. A. S. Butler (Household Brigade Flying Club)—Moth (Gipsy).
3. Flt. Lt. T. B. Bruce (R.A.E. Aero Club)—Avian (Cirrus).

THE PRESENTATION.—Miss Winifred Brown receiving the Siddeley Trophy from Sir Philip Sassoon.

4. W. L. Hope (London Aeroplane Club)—Moth (Gipsy).
5. Lieut.-Comm. Glen Kidston, R.N. (Hampshire Aeroplane Club)—Puss Moth (Gipsy III).
6. Sq. Ldr. the Rt. Hon. F. E. Guest (Hanworth Club)—Tomtit (Mongoose).
7. J. B. Buckley (Hampshire Aeroplane Club)—Moth (Cirrus).
8. Lieut. L. G. Richardson, R.N. (London Aeroplane Club)—Moth (Cirrus).
9. R. G. Cazalet (Midland Aero Club)—Widgeon (Hermes).
10. T. G. Naylor (Liverpool and District Aero Club)—Moth (Gipsy).
11. Lieut. Caspar John, R.N. (Hampshire Aeroplane Club)—Avian (Cirrus).
12. W. L. Runciman (Newcastle Aero Club)—Moth (Cirrus).



CONGRATULATIONS.—Miss Winifred Brown in her Avro Avian (Cirrus III engine) receives the applaudissements of the favoured few on the aerodrome. In the middle Mr. Harold Perrin, on the right Mr. Olney of the Cirrus Engine firm. —(*"Aeroplane" photograph.*)

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SHELL—AS USUAL!

KING'S CUP

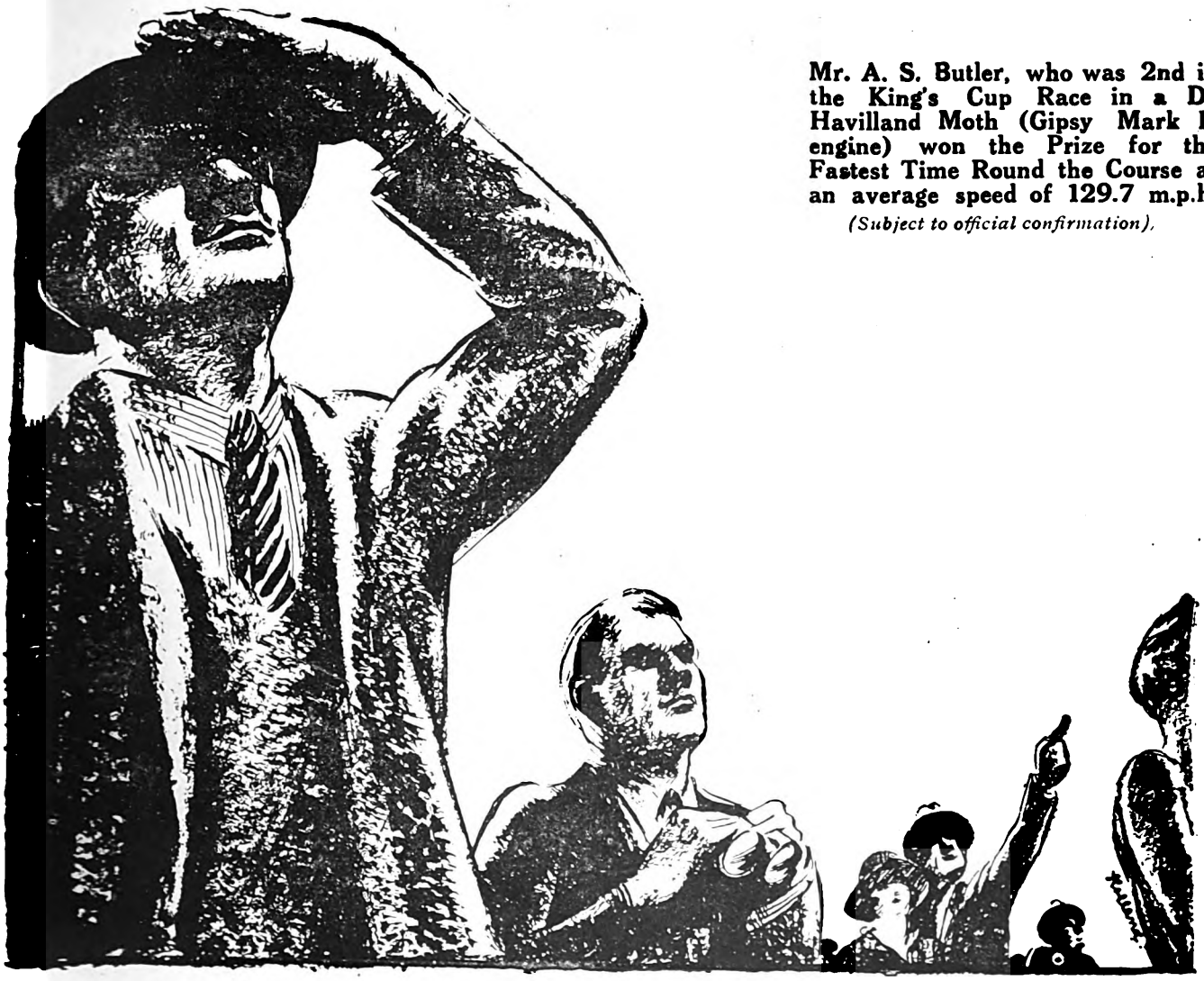
Fastest Time Round Course

by a

De HAVILLAND MOTH

on special

SHELL PETROL



Mr. A. S. Butler, who was 2nd in the King's Cup Race in a De Havilland Moth (Gipsy Mark II engine) won the Prize for the Fastest Time Round the Course at an average speed of 129.7 m.p.h.

(Subject to official confirmation).

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13. J. D. Irving (Newcastle Aero Club)—Moth (Gipsy).
14. Derek Schreiber (Hampshire Aeroplane Club)—Moth (Gipsy).
15. A. C. M. Jackaman (London Aeroplane Club)—Moth (Gipsy).
16. Sq. Ldr. H. M. Probyn (Halton Aero Club)—Widgeon (Genet).
17. Hon. Lady Bailey (Liverpool and District Aero Club)—Moth (Gipsy).
18. I. R. Parker (Liverpool and District Aero Club)—Moth (Cirrus).

ONE VIEW OF THE RACE.

The following letters deserve the attention of the Royal Aero Club:—

Sir,—I am taking the liberty of addressing you to air a justifiable grievance in the knowledge that your influence is most likely to provide a remedy on future occasions. I refer to the arrangements made for the 5s. public at Hanworth yesterday.

I reached the aerodrome at 8.45 to see the start. After seeking vainly for the 5s. entrance, I sought admittance at all the other entrances then open. In spite of being in possession of 5s. tickets I was refused admission everywhere. Eventually after some discussion with a high official (a colonel) I was generously admitted to the 2s. 6d. enclosure at 9.40. So much for the morning.

In the afternoon the 5s. enclosure was actually open. We were admitted,—to what? A pen about 50 yards by 10 facing straight into the sun and as far from the machines as it was possible to place it. You will appreciate the difficulty of viewing flying from a sideways position.

There was no seating accommodation. A charge of 6d. was made for iron seats. There were no sanitary arrangements of any kind, and there were, no wonder, less than 100 people.

Now, Sir, I ask you! Do you wonder that we left our expensive position and took up quite a good viewpoint in the 1s. enclosure.

Personally I have no grouch, as one unsatisfactory meeting merely warns me to avoid that ground for the future. I have attended countless meetings since the days of R. T. Gates. But on Saturday I had with me a young man, wealthy and anxious to become "airminded." It was his first meeting. If that young man takes to flying he will avoid N.F.S. like the plague. But will he accept another invitation? (Signed) J. H. COUCKE.

Sir,—As a member of the public interested in aviation I should like to point out some of the ways in which the last two meetings at Hanworth fall short of the standard which is to be desired.

At the King's Cup Race, the most important meeting of the year in Civil Aviation, the arrangements were much inferior to what one would expect, and to those which have been made in the past at other flying meetings.

With regard to the race itself, I realise that the state of affairs may not be due entirely to N.F.S. I assume, however, that the arrangements in the public enclosures were supervised by N.F.S.

The machines for the race were parked far away from the public enclosures, and even in taxying to the starting-line they did not give the public a close view. At the finish of the race the machines were allowed to land over the finishing line right across the path of the remaining competitors, an exceedingly dangerous proceeding, which was quite unnecessary in view of the size of the aerodrome and the prevailing direction of the wind.

The information bureau in the enclosure was apparently empty all day, and although I visited it many times there was never anyone there. For those who arrived after the start of the race (i.e. nearly everybody in the enclosures) it was impossible even to find out who had started in the race, as there was no notice board or list showing the progress of the competitors. There was no way of ascertaining anything that had happened previous to the time of one's arrival at the aerodrome.

The announcements made on the loud speaker as the race progressed were of little use, because there was no space provided in the programme to note them down. The announcer was not even capable of recognising all the types of aircraft when they passed him at the finish. I suppose it is too much to expect an intelligent talk on aviation in place of the dance records which were used at the Easter meeting. [And few of the records less than a year old.—ED.]

The catering arrangements were not good, and the sanitary arrangements were a disgrace to a civilised community.

With regard to the programme of flying and the Hanworth Pageant: one event did not take place, and another was simply not worth watching. At the Hanworth Pageant at Easter several interesting events announced beforehand in the papers were not even on the programme. Some of the events which were on the programme did not take place at the advertised time, and others were cancelled.

I maintain that more consideration should be shown for the public, who as taxpayers help to subsidise N.F.S. A well-arranged air meeting is not an impossibility, and such have been given in the past at Hendon, Heston, Croydon and Brooklands.

To foreigners and to those newly interested in aviation the last two meetings at Hanworth give a very poor impression of what an aviation meeting should be. This is not my own view alone, but is supported by the opinions of other spectators. (Signed) E. N. B. BENTLEY.

THE NEW 'IRAQ TREATY.

The Baghdad correspondent of *The Times*, in a message dated July 1, states that a Treaty of Alliance and amity between Great Britain and 'Iraq has been signed and will come into force when 'Iraq is admitted as a member of the League of Nations.

The main bases of the Treaty are:—

Great Britain will recognise the automatic termination of 'Iraq.

'Iraq will assume the sole responsibility for the administration of her own affairs, also the responsibility for maintaining internal security and, subject to the terms of the alliance, the defence of the country against foreign aggression.

Great Britain will recognise the automatic termination of her mandatory responsibilities as soon as the Treaty comes into operation.

All British forces will be withdrawn from Hinaidi, the big R.A.F. station seven miles from Baghdad, and from Mosul, within a period of not more than five years from the date of the coming into force of the Treaty, when 'Iraq will lease to Great Britain three air bases to the west of the Euphrates and the Shat-al-Arab. These bases will be protected by 'Iraqi troops at British expense.

The duration of the Treaty will be 25 years, and it is stipulated that at any time after the expiry of 20 years from the date of the coming into force of the Treaty, negotiations may be opened at the request of either contracting party for the conclusion of a new Treaty for the safety of the main air routes and British Imperial communications. In the event of disagreement, the question is to be referred to the Council of the League of Nations.

Each contracting party will be represented at the Court of the other by a diplomatic representative "accredited in accordance with the practice observed among independent States."

FOR BELGIUM.—The latest model of the Westland Wessex six-seat cabin monoplane, four of which have been acquired by the Belgian Sabena Company.

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THE ROYAL AIR FORCE.

The London Gazette.

Air Ministry, July 1.

ROYAL AIR FORCE.

GENERAL DUTIES BRANCH.—Capt. A. D. MacDonald, M.C. (R.A.R.O.) granted a S.S. comn. as a Flt. Lt. on the Supplementary List with effect from June 16, and with seniority of Feb. 3, 1924.

Flg. Off. J. B. Mackenzie takes rank and precedence as if his appointment as Flg. Off. bore date April 1. Reduction takes effect from May 16.

Group Capt. A. Fletcher, C.M.G., C.B.E., M.C., is placed on the retired list at his own request, and is granted permission to retain the honorary rank of Air Commodore (July 1).

Flg. Off. E. W. T. Crouch is placed on the retired list at his own request (July 1); Flt. Lt. (Hon. Sq. Ldr.) V. M. Kenny-Leveck, M.B.E. (Major, General List, R.A.R.O.), relinquishes his S.S. comn. on the Supplementary List on account of ill-health (June 28); Lt. G. F. Renwick, R.N., Flg. Off., R.A.F., ceases to be attached to the R.A.F. on return to Naval duty (June 20).

MEDICAL BRANCH.—The following Flg. Offs. are promoted to the rank of Flt. Lt.:—G. W. Paton, M.B., Ch.B. (June 1); H. C. S. Pimblett, M.B., B.S. (July 2); C. Crowley, M.B., B.Ch. (July 2).

CHAPLAINS' BRANCH.—The Rev. G. A. Davies, B.A., is promoted to the relative rank of Wing Cdr. (June 28).

RESERVE OF AIR FORCE OFFICERS.

GENERAL DUTIES BRANCH.—The following are granted comns. in Class AA ii as Plt. Offs. on probation:—C. D. Pitman (June 16); J. H. C. Beard (June 17); J. A. Champness (June 19). C. C. Ellis is granted a comn. in the Special Reserve as a Plt. Off. on probation (June 9).

The following Flt. Lts. are promoted to the rank of Sq. Ldr. (July 1):—H. L. Nunn, D.S.C., D.F.C., J. L. N. Bennett-Baggs.

The following Flg. Offs. are promoted to the rank of Flt. Lt. (July 1):—H. G. W. Debenham, C. B. Wilson, G. Rose, T. E. W. Browne, H. N. Davies, F. T. Stacey, C. Clarkson, L. A. Egglesfield, E. C. G. Badcock, W. F. Rimmer, E. L. Drew, F. H. Dight.

The following Plt. Off. on probation is confirmed in rank:—H. Clive-Smith (May 29).

Flg. Off. E. G. D. Stewart, M.C., is transferred from Class C to Class A. (May 8). Flg. Off. W. F. Bryanton is transferred from Class A to Class C (Apr. 11). Flg. Off. A. W. Wood relinquishes his comn. on completion of service (May 27).

STORES BRANCH.—The following Flt. Lts. are promoted to the rank of Sq. Ldr. (July 1):—A. J. Roberts, H. P. Bridges. Flt. Lt. C. Harvey relinquishes his comn. on completion of service and is granted permission to retain the rank of Sq. Ldr. (June 17).

MEDICAL BRANCH.—Flt. Lt. T. L. P. Harries, M.B., relinquishes his comn. on completion of service (Jan. 30).

AUXILIARY AIR FORCE.

GENERAL DUTIES BRANCH.—No. 601 (COUNTY OF LONDON) (BOMBER) SQUADRON.—The following to be Plt. Off.:—A. C. M. Jackaman (May 31). Plt. Off. E. A. Huntington-Whiteley resigns his comn. (June 17).

No. 604 (COUNTY OF MIDDLESEX) (BOMBER) SQUADRON.—The following to be Plt. Off.:—L. E. A. Healy (June 6).

No. 605 (COUNTY OF WARWICK) (BOMBER) SQUADRON.—The following to be Plt. Off.:—G. J. Paddock (June 12).

Appointments.

Week ending July 7.

GENERAL DUTIES BRANCH.—Squadron Leaders L. M. Bailey, A.F.C., to H.Q., Coastal Area, 1/7. A. Durston, A.F.C., to H.M.S. *Courageous*, 1/7. A. G. Bishop, O.B.E., A.F.C., to R.A.F. College, Cranwell, 30/6. W. A. K. Dalzell, to E. and W. School, Cranwell, 30/6. A. P. Maurice, D.F.C., to R.A.F. Depot, Uxbridge, 1/7.

Flight Lieutenants D. F. Anderson, D.F.C., A.F.C., to Aircraft Depot, India, 9/6. A. C. Evans-Evans, to Station H.Q., Hawkinge, 25/6. L. Darvall, M.C., to No. 503 Sqdn., Lincoln, 30/6. L. Eardley-Wilmot, to R.A.F. Depot, Uxbridge, 26/5. J. A. T. Ryde, to Experimental Section, R.A.E., S. Farnborough, 2/7. H. M. A. Day, A.M., to No. 23 Sqdn., Kenley, on appointment to a Perm. Comn., 21/6.

Flying Officers F. Gower-Jones, to R.A.F. Depot, Uxbridge, 28/5. N. F. V. Henkel, to R.A.F. Depot, Uxbridge, 13/6. J. W. Caddy, to School of T.T. (Men), Manston, 4/7. L. P. Moore, to School of Army Co-operation, Old Sarum, 30/6. K. C. T. Marshall, to R.A.F. Training Base, Leuchars, 2/7.

Pilot Officer A. T. Wilson, to R.A.F. Depot, Uxbridge, 1/7.

STORES BRANCH.—Flight Lieutenant R. H. Latham, to Station H.Q., Manston, 17/6.

Flying Officers H. A. Wrigley, to No. 1 F.T.S., Netheravon, instead of to School of Balloon Training, Rolleston Camp, 28/6. J. S. French, to School of Balloon Training, Rolleston Camp, instead of to No. 1 F.T.S., Netheravon, as previously notified, 23/6.

ACCOUNTANT BRANCH.—Squadron Leader E. N. E. Waldron, to R.A.F. Base, Gosport, 30/6.

The Royal Investiture.

His Majesty the King held an Investiture at Buckingham Palace on July 5. Among those in personal attendance upon the King was Group Capt. L. W. B. Rees, V.C. (Air Aide-de-Camp in Waiting).

The following were among those severally introduced into the presence of the Sovereign when the King invested them with the insignia of the respective Divisions of the Orders into which they have been admitted:—

THE MOST HONOURABLE ORDER OF THE BATH, *Received the Honour of Knighthood, Knight Commander (Military Division)*: Air Vice-Marshal David Munro.

THE MOST EXCELLENT ORDER OF THE BRITISH EMPIRE. *Commander (Military Division)*: Wing Cdr. Harold Whittingham, R.A.F.

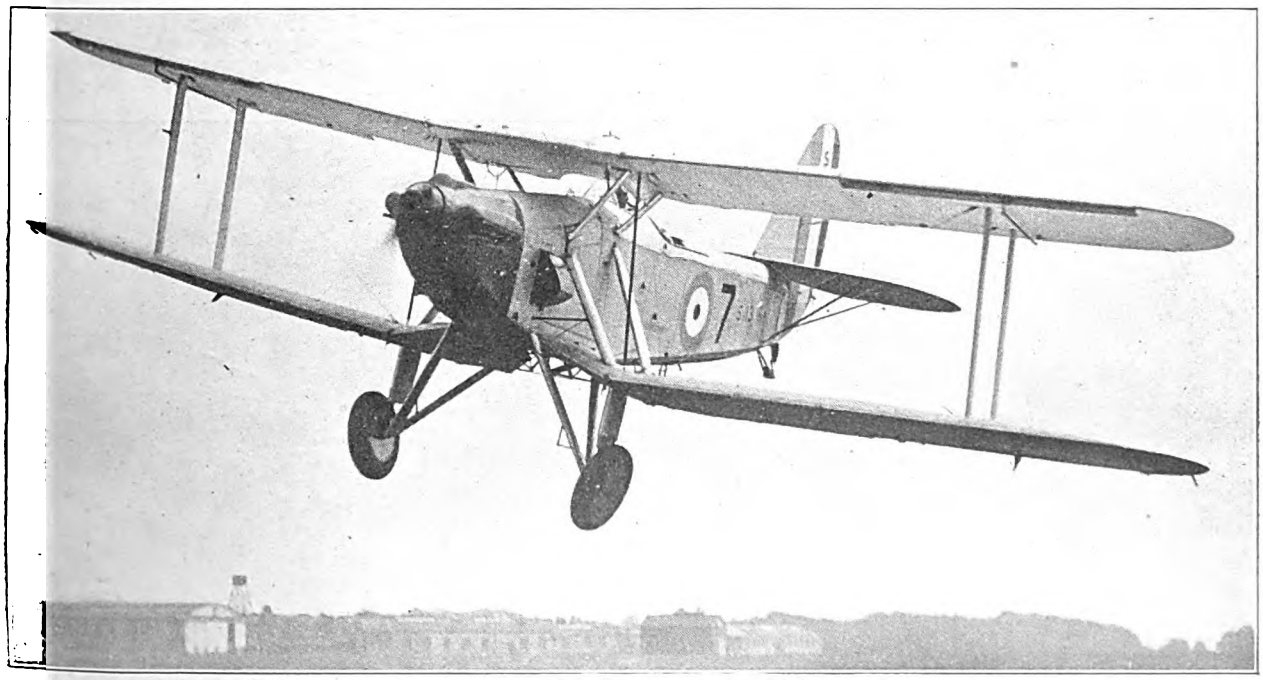
Officers (Military Division): Wing Cdr. William Millett, R.A.F.; Sq. Ldr. Alan Bishop, R.A.F.; Sq. Ldr. Hugh Leedham, R.A.F.

Members (Military Division): Flt. Lt. Sidney Bailey, R.A.F.; S-M. Alfred Box, R.A.F.; S-M. Laurence Fears, R.A.F.; S-M. Frank Lamdin, R.A.F.

His Majesty then conferred Decorations as follows:—

THE ROYAL RED CROSS (*Member*): Miss Katherine Watt, Princess Mary's R.A.F. Nursing Service.

THE AIR FORCE CROSS: Sq. Ldr. Alan Lees, R.A.F.; Flt. Lt. Henry Lock, R.A.F.; Flt. Lt. John McFarlane, R.A.F.; Flt. Lt. Alfred Wardle, R.A.F.



COAST DEFENCE.—A Blackburn Ripon (570 h.p. Napier Lion XI engine) Fleet Torpedo Bomber designed for coastal defence. The Ripon can be used as a land- or seaplane and is the equipment of No. 462 (Fleet Torpedo Bomber) Flight. —("Aeroplane" photograph.)

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The 'Iraq Active Service Medal.

The 'Iraq Active Service Medal, which many people saw for the first time being worn by members of the R.A.F. at the Display at Hendon, has been, with the approval of His Majesty the King, granted by His Majesty King Faisal to members of the British Forces who took part, with the 'Iraq Forces, in the operation in the Eastern (Sulaimania) District of 'Iraq between May 24, 1924, and December 18, 1924, and between March 23, 1925, and September 30, 1925.

The number of R.A.F. *personnel* who have qualified for the award is approximately 450. The medal is issued to entitled *personnel*, whether serving or not, without application.

The issue is now almost complete and only a few medals remain outstanding.

The medal is a bronze disc 1¼ inches in diameter fixed upon two crossed rifles with their muzzles appearing at the top and their butts at the bottom of the disc, the imaginary point of juncture being the centre of the disc. At the top of the disc there is a radiation of nine lance points with its base fixed on the circumference of the disc and its top attached to the ribbon holder.

At the bottom part of the obverse of the medal is a crescent and above it a circular wreath open at the top, inside of which is written in Arabic the words "General Service." On the reverse of the medal is the name of His Majesty King "Faisal I" and the Hijrah date of the institution of the medal.

The medals are not inscribed with the names of the recipients.

The ribbon is 1¼ inches in breadth of three vertical stripes of equal width, the middle white and the outsides green.

Service Owners of Private Aircraft.

A recent amendment to *King's Regulations and Air Council Instructions for the R.A.F.* states that "no charge will be raised in respect of the landing at an air force station of a civil aircraft flown by an officer of the R.A.F., the R.A.F. Reserve or Auxiliary Air Force, provided the aircraft is not being used for trade, business or professional purposes."

Also "no charge will be raised in respect of the accommodation of a civil aircraft flown by an officer of the R.A.F., the R.A.F. Reserve or Auxiliary Air Force at any air force station at which he may be stationed or at which the aircraft may be allowed to stay in accordance with paragraph 2036 provided that the accommodation is available without detriment to public requirements, that no cost to the public is involved, and that the aircraft is not being used for trade, business, or professional purposes."

Aircraft Noise at Hendon.

In the House of Commons on July 2, in reply to a question by Sir Philip Cunliffe-Lister, the Under-Secretary of State for Air said that complaints of nuisance caused by low-flying had been received from residents near Hendon aerodrome from time to time and all concerned at the Air Ministry were fully alive to the desirability of lessening any inconvenience caused. It was impossible, however, wholly to remove it, because Hendon aerodrome was an Auxiliary Air Force station at which flying was necessarily done to a large extent during week-ends, when alone many of the pilots concerned had time to attend. Orders had been issued prohibiting flying during the hours of Church services on Sunday morning and restricting it as far as possible during evening service. Anything in the nature of unnecessary low flying was prohibited, and in suitable cases disciplinary action would be taken against offenders. Everything that was possible would be done to reduce the inconvenience to residents to a minimum, but he was afraid that noise in the vicinity of an aerodrome was at present inevitable.

[Curiously enough the mind which is prejudiced against aircraft never seems to object to the far worse noises made by shrieking horns on motor-cars, the motor-bicycle which belongs to a type of youth who appears to exist to make a nuisance of himself, Church bells, wireless loud-speakers, gramophones, Salvation Army Meetings, and the undisciplined modern child.

The anti-aircraft mind always writes to the newspapers or to its local Member of Parliament and refuses to realise that there is a necessary period between leaving the ground and attaining a reasonable height, when aeroplanes have to be near the ground.—ED.]

Sir Philip Cunliffe-Lister said that he appreciated the difficulties and asked whether the Secretary of State for Air would be willing to have a discussion with representative residents from the neighbourhood. [One hopes that the local tradesmen who make money out of the R.A.F. will be included among the representatives.—ED.]

Mr. Montague agreed to this suggestion but pointed out that the problem affected the whole of London as well as Hendon.

Mr. Maclean suggested that those living in the vicinity of shunting yards suffered a great deal more from nuisance than those living in the vicinity of Hendon aerodrome.

Naval Co-operation.

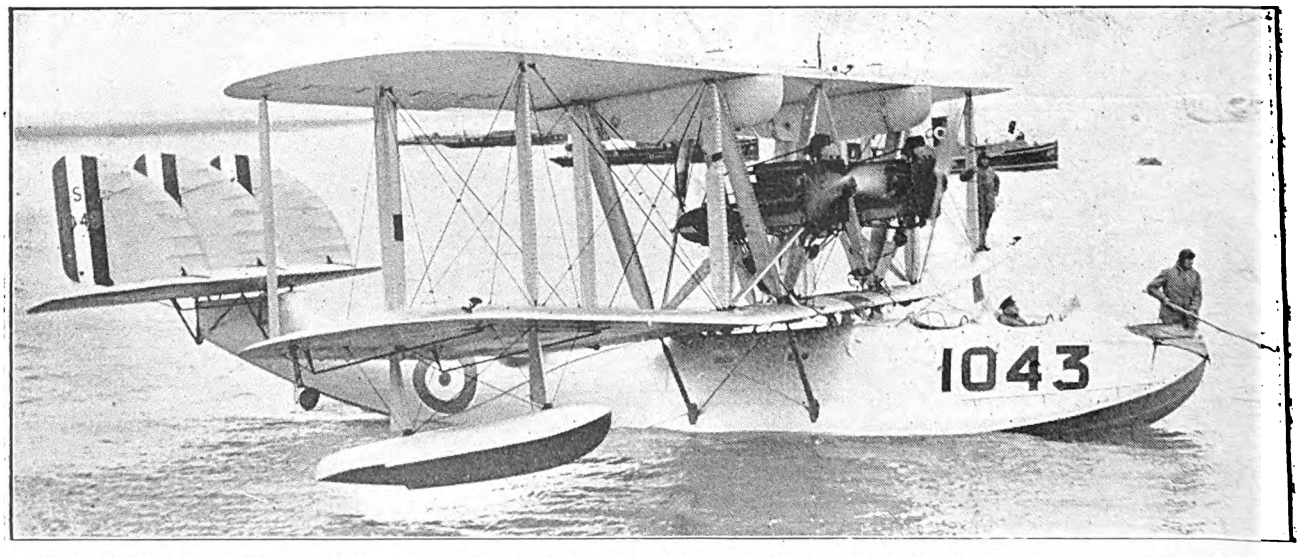
A Parnall Peto light reconnaissance seaplane (Armstrong Siddeley Mongoose engine) made a forced landing on the beach at Stokes Bay, Hampshire, after having been launched from H.M. Submarine M.2 and flown a short distance. The pilot Flg. Off. C. L. Keighley-Peach and the observer Lieutenant Cooper, R.N., were unhurt but one or two people on the beach received minor injuries and a number of bathing huts were demolished.

According to the *Portsmouth Evening News* of June 30 Mr. A. B. Roberts the Borough Hackney Carriage Inspector said that the machine was in appearance like a Schneider Trophy aeroplane and he expected it to give a burst of speed.

Vacancies in the Stores Branch.

The Air Ministry announces that about five vacancies for permanent commissions in the Stores Branch of the R.A.F. will be offered for competition among young men of between 23 and 25 years of age on Jan. 1, 1931, who have had not less than five years' business experience in a firm of standing. This will be the fifth competition under the scheme inaugurated in 1926 for the purpose of obtaining men with a business training to control and administer the supply of the highly valuable and complex equipment of the R.A.F.

From among those who apply a limited number of candidates will be selected for an examination in London in the latter part of October, 1930, consisting of two parts, an inter-



THE BLUE WATER SCHOOL.—The Supermarine Southampton Flying-Boat (2 Napier Lions) which led the formation of No. 201 (Flying-Boat) Squadron over the R.A.F. Display at Hendon on June 28, coming up to moorings at Calshot. According to a correspondent of "The Aeroplane" this Squadron alighted at Southend after leaving Hendon and before returning to Calshot.

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"Not to mention the brilliant idea of having side-by-side seating and a really comfortable cockpit."

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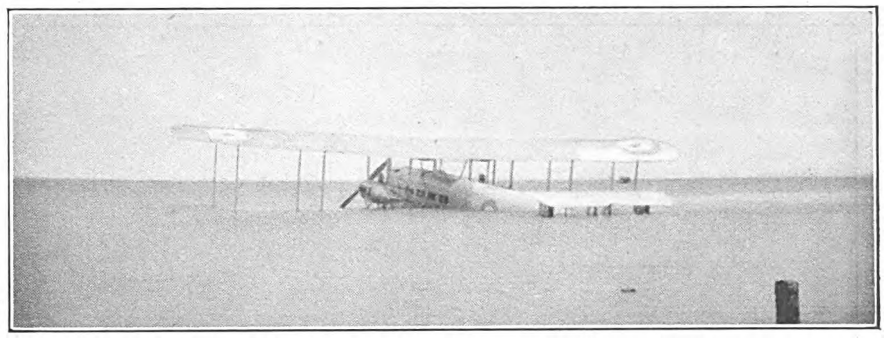


SEA BATHING.—One of the Vickers Victorias, which were attached to No. 9 (Bomber) Squadron for the R.A.F. Display on June 28, after a forced landing off Leysdown, Kent. As the Air Ministry disclaims all knowledge of a casualty to a machine of this type the presumption is that sea-bathing is part of the normal routine of these machines. Possibly it was not sure whether it was a Vickers or a Supermarine.

view before a board and a written examination. The written examination will be of such a character that men of good general education can take it without special study.

Application should be made to the Secretary, Air Ministry (S.7), Kingsway, London, W.C.2, for the regulations and for application forms. Completed application forms should reach the Air Ministry by Aug. 15, next, or at the latest by Sept. 1.

Vacancies for Aircraft Apprentices.

The Air Ministry announces that five hundred Aircraft Apprentices between the ages of 15 and 17, are required by the R.A.F. for entry into the Schools of Technical Training at Halton, Bucks, and at Cranwell, near Sleaford, Lincs. They will be enlisted as the result of an Open Competition and of a Limited Competition which will be held in the near future by the Civil Service Commissioners and the Air Ministry respectively. Boys in possession of an approved first school certificate may be admitted without other educational examinations. Successful candidates will be required to complete a period of twelve years' regular Air Force service from the age of 18, in addition to the training period. At the age of 30 they may return to civil life or may be permitted to re-engage to complete time for pension.

Full information regarding the date of the respective examinations, the methods of entry and the aircraft apprentice scheme generally can be obtained upon application to the Royal Air Force (Aircraft Apprentices' Dept.), Gwydyr House, Whitehall, London, S.W.1. The sons of officers, warrant officers and senior N.C.O.'s of the three Services will receive special consideration.

Afghanistan.

A *Reuter* message in *The Times* of June 30 states:—

An R.A.F. aeroplane which recently made a forced landing in Afghanistan has been brought back to Peshawar aerodrome by lorry. It appears that the Afghan Government does not permit flying over Afghan territory.

Subsistence Allowances.

An Air Ministry Order states that when a grant is made from the Air Ministry Entertainment Fund towards the expenses incurred in entertaining foreign visitors, the officer who is detailed to act as conducting officer, and who is necessarily entertained with the mission, is not entitled to subsistence allowance if his absence does not exceed ten hours.

If the period of absence exceeds ten hours but does not extend over a night, the officer will be eligible only for the difference between the higher and lower rates of daily subsistence allowance (i.e., 4s.).

When absence for a night or a longer period is involved, reference should be made to the Air Ministry, through the usual channels, so that a suitable rate of subsistence allowance may be fixed.

Civilian Stores Officers.

The present rates of foreign service allowances appropriate to civilian stores officers are as follows:—

Malta (married), £70; (single), £59 10s.
Middle East (married), £300; (single), £200.
'Iraq (married), £427 10s.; (single), £292 10s.

Kit Inspection.

An Air Ministry Order announces that in future the kit of every airman (exclusive of apprentices) shall be inspected at least once a quarter, instead of once a month. The kits of apprentices will continue to be inspected at least once a month.

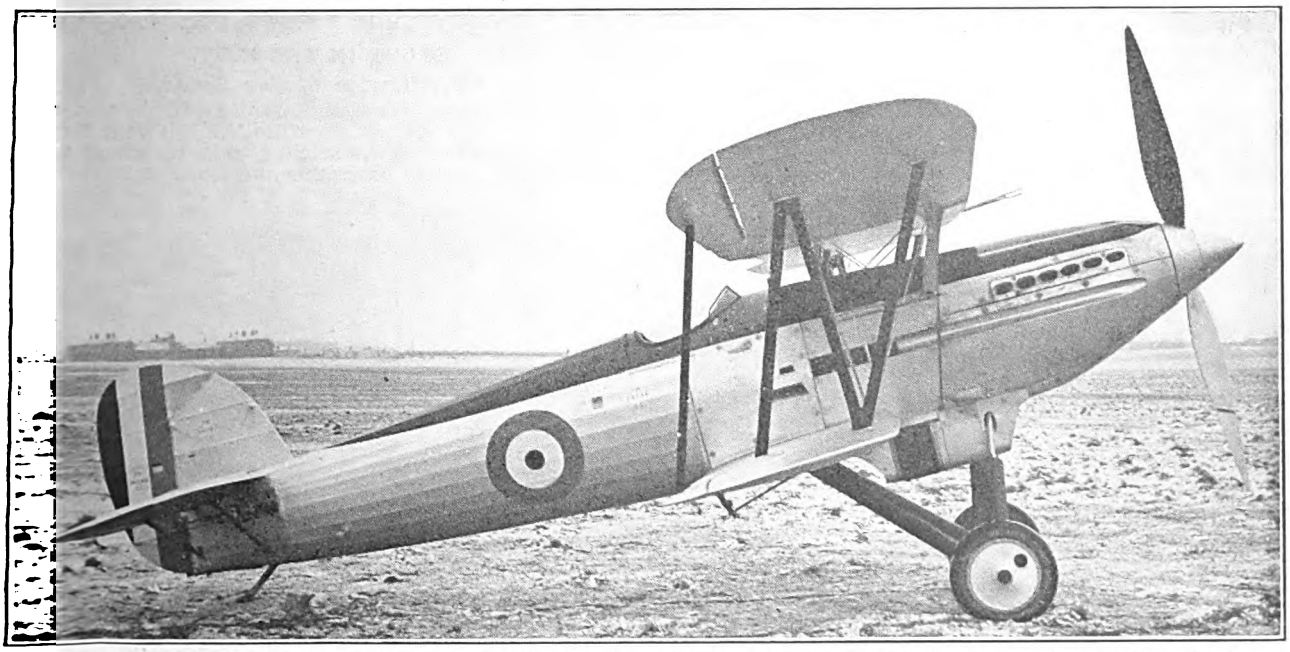
The R.A.F. Memorial Fund.

The amount of the grants made to the past and present members of the R.A.F. by the R.A.F. Memorial Fund during the period between April 1 and June 30 was £3,111 3s. During this time 302 cases were dealt with in the office of the Fund, grants being made for maintenance during sickness and fees at convalescence homes, for clothing, for tools, for arrears of rent, insurance and rates and for loans to establish small businesses. The offices of the Fund are at 7, Iddesleigh House, Caxton Street, S.W.1.

The Comrades of the Royal Air Force.

The first General Meeting of the Royal Air Force Comrades Association will be held at the Queen's Hotel, Leicester Square, W.C.2, on Saturday, July 12, at 18.00 hours. Air Commodore C. R. Samson, C.M.G., D.S.O., A.F.C., R.A.F. (retired), will preside at this Meeting.

Membership of the Comrades of the Royal Air Force is open to all Officers, Warrant Officers, Non-commissioned



THE FAIREY FIREFLY.—A side view of the latest version of the Fairey Firefly Intercepter Fighter (Rolls-Royce "F" engine).

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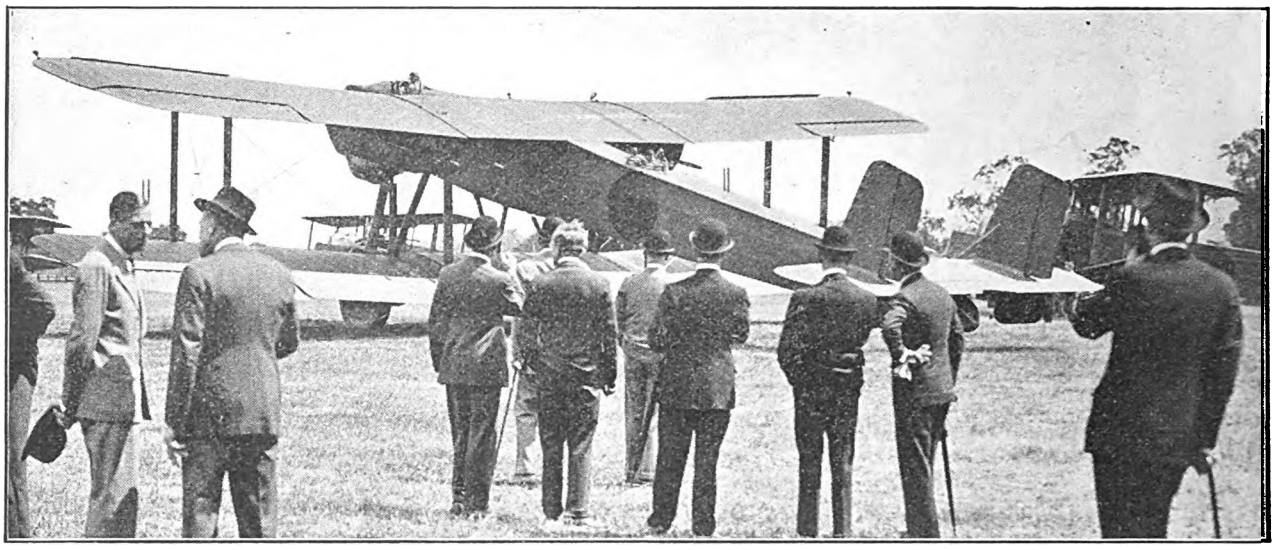


ROYALTY AND NOVELTY.—H.R.H. Prince George watching Sq. Ldr. Tom England taking off the newest and strangest Handley Page night-bomber.

Officers and Airmen, past and present, who have been gazetted, attached, seconded or transferred to, or enlisted in, the Royal Fying Corps, the Royal Naval Air Service, the Royal Air Force, the Auxiliary Air Force, the Special Reserve and the Dominion and Colonial Air Forces. The rates of subscription are—Life Membership £5 5s., or Annual Subscription 5s.

The R.A.F. Service Ambulance.

Ever since those gallant ancestors of the Royal Air Force, the R.F.C., and R.N.A.S. came into existence in the carefree days before 1914 a mild form of warfare has existed between those who fly and those who do not in every Flying Service in the World. In spite of the fact that Medical Officers were numbered among the first pilots of the pre-War British Flying Services and that by an Air Ministry Order of recent years, they may qualify as pilots in the R.A.F., the Medical Branch, in common with the Stores Branch and the Accountants Branch of the Service, are still considered by the irreverent youth of the General Duties Branch as "Ground Wallahs," and as such to a certain amount of friendly contempt.

But, as a distinguished Medical Officer of the R.A.F. said to the writer, "We always get them in the end!" It is hardly necessary to say that he was not referring exclusively to flying accidents.

Despite the publicity given to Service flying accidents in the daily Press, they are relatively rare compared with the unpublished number of hours flown by Service aircraft. Sports and games and road accidents account for a much higher percentage of accidents to R.A.F. *personnel.* And, so that it may be effective in an emergency, the ambulance must be ready on the aerodrome during flying hours, faultless in every detail of its construction and equipment.

The old ambulance equipment of the R.A.F. is now being replaced by six-wheeler ambulances built by Morris Commercial Cars Ltd., of Birmingham, photographs and a few details of which are given accordingly for the information of those R.A.F. Stations who have not received the new equipment, and those Dominion and Foreign Air Services and Civil Air Transport Companies and Clubs which are interested in the emergency equipment of their aerodromes.

Engine.—Four cylinders, 80 x 125 mm., Smith's horizontal carburetter with Visco air cleaner, 12-volt dynamo lighting set, electric starter, power driven tyre pump.

Main Gearbox.—Main gearbox and clutch in unit construction with engine. Four forward speeds and reverse. Auxiliary gearbox of sliding gear type bolted directly to rear of main gearbox with ratio of 3.42 to 1 on all gears.

Steering.—By worm and full worm wheels which may be set in either of four positions thus giving four lives.

Radiator specially suitable for tropical conditions, provided with means for blanking off if necessary.

Petrol Capacity of 8½ gallons.

The ambulance body and cab is of a special design approved by the Air Ministry. The interior is fitted with four stretchers, two upper stretcher-carriers with the standard type of folding gear to take the standard service stretchers and the two lower stretcher-carriers are of the Rastilon suspension spring type to carry the standard service stretchers and fitted with a special device to lock the springs when the carrier is used as seats.

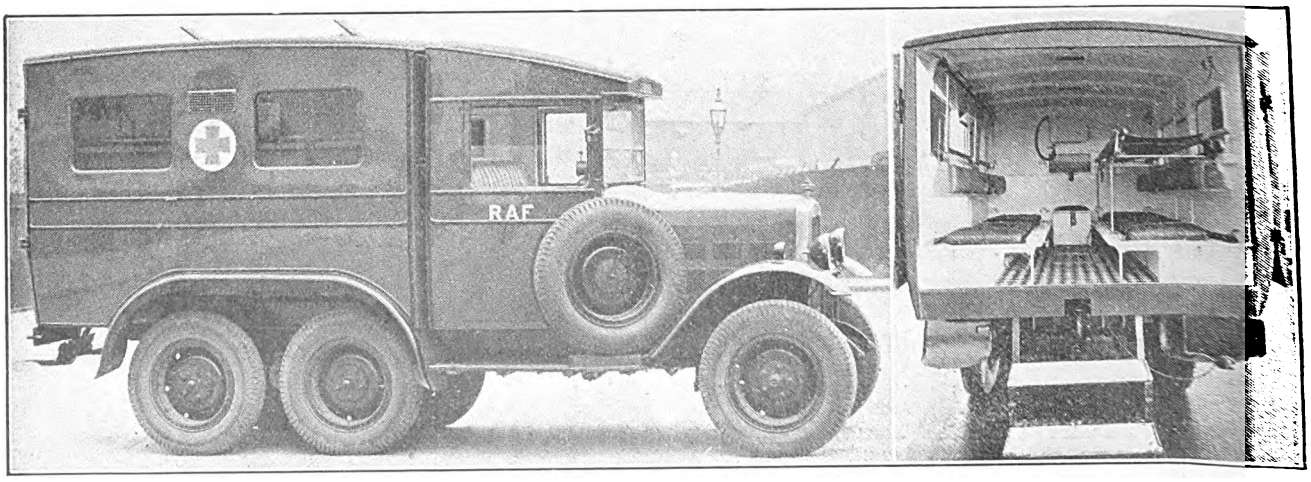
The double roof has an air space between top and bottom coverings. There are two roof ventilators, three louvre ventilators and one pair of front sliding windows. The body is panelled with metal-faced plymax to prevent drumming, and is fitted with a hot-water heating apparatus and a wash basin with hot and cold water. An electric fan and electric lights are fitted. Accommodation for first aid boxes and Thomas splints is provided in the driver's cab which is fitted with a spring seat, back rest and cushions.

Anyone who has ever travelled, even undamaged, in some of the older types of military "blood-wagon" will be thankful to know that the victims of present-day mishaps travel the worst roads with the least possible discomfort.—C. M. MCA.

SPORT IN THE R.A.F.

West Drayton Station Sports.

That most erratic fellow, the Weather Clerk, was on his best behaviour on May 28 when the R.A.F. (West Drayton) held the first station sports meeting to be organised at that station. The cheerful programme of music rendered alter-



EMERGENCY EQUIPMENT.—The six-wheeler ambulance which is being supplied to the Royal Air Force by Morris Commercial Motors Ltd.

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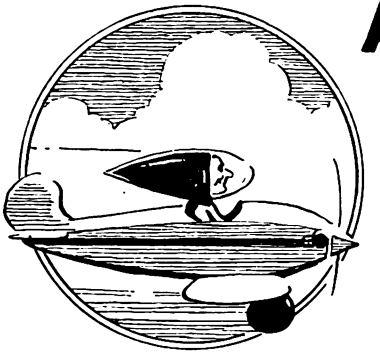
Tips for Pot-Hunting Aviators

There are numerous-



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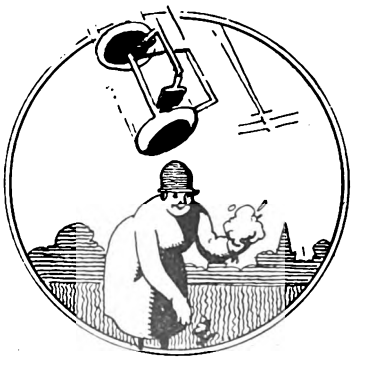

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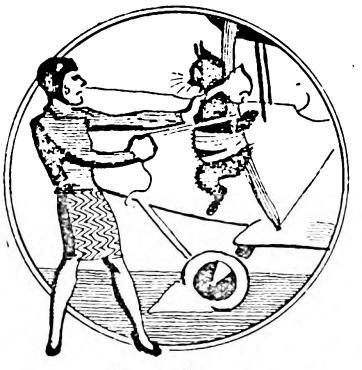

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of victory-

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nately by the R.A.F. Central Band (under Sjt. Preston) and by the bagpipes of Corporal Lough provided a sympathetic accompaniment to a really exciting day's sport.

The Commanding Officer, Group Capt. H. R. Busteed, O.B.E., A.F.C., provided a challenge cup, which was competed for by Headquarters No. 21 Group and Nos. 1 and 2 Sections of the Reception Depot. The strength of the Station being only about 90, it is noteworthy that there were 66 entrants. After a most exciting battle, in which the result was in doubt until the last event (the inter-section medley relay), Headquarters No. 21 Group secured the cup by one point over No. 2 Section, their scores being 27 and 26 respectively, while No. 1 was not far behind with 19.

This being the first meeting at West Drayton, all the winners have the satisfaction of holding a "record for the ground." On the whole, the times were not very good, but the competitors were so well matched that every event provided a fighting finish.

The winners of the various events were:—

Three Miles.—L-AC. Johnson (Gp. H.Q.) (18 m. 26 2-5 s.).
One Mile.—L-AC Johnson (Gp. H.Q.) (5 m. 15 s.).
120 *Hurdles.*—AC. Huckerby (1) (20 4-5 s.).
100 *Yards.*—Cpl. Wilkinson (2) (11 1-5 s.).
Two Miles Walk.—L-AC. Chalmers (1) (18 m. 16 s.).
Officers' Race.—Group Capt. Busteed.
880 *Yards.*—AC. Coker (1) (2 m. 23 s.).
220 *Yards.*—AC. Snowden (2) (26 1-5 s.).
Putting-the-Shot.—AC. Reveller (2) (31 ft. 1¼ in.).
Long Jump.—Sjt. Grigg (Gp. H.Q.).
440 *Yards.*—AC. Snowden (2) (58 3-5 s.).
Tug-of-War.—No. 2 Section (1), No. 1 Section (2), Group H.Q. (3).
Veterans' Race.—Flt. Lt. Cox (scratch). *Serjeants' Race.*—Sjt. Fisher (scratch).
High Jump.—AC. Duggan (Gp. H.Q.) (4 ft. 9 in.).
Inter-Section Relay (220, 440, 880, 220).—Group H.Q. 1, No. 1 Section 2, No. 2 Section 3. This race, which decided the ownership of the cup, was one of the best of the day; the deciding factor was the 880, where Johnson snatched a few yards' lead to enable Group to win.—W. H. P.

THE SCHNEIDER TROPHY CONTEST.

The *Fédération Aéronautique Internationale* adopted at their recent conference a resolution to postpone the final date of entry for the 1931 Schneider Trophy Contest from July 31 to Dec. 31 next. The suggestion came from Italy, whose delegates complained that the entry fee of 200,000 fr. (£1,600) was too high. Italy offered to accept an entry fee of 5,000 fr. (£40) if the contest were held in Italian waters.

The conditions of the race provide that it shall be held in the home waters of the previous winner, so the F.A.I. congress made no move to try and change the course.

The Royal Aero Club of Great Britain protested against the proposed alterations, but the resolution, as passed, postpones the final entry date to Dec. 31 with the proviso that entries made before July 31 pay only 5,000 fr. instead of the full 200,000 fr. The Royal Aero Club has not yet signified acceptance of the new conditions.

[The entry fee of £1,600 was instituted to prevent self-advertising Aero Clubs from entering machines which have no chance of appearing at the start of the race. Such entries put a vast amount of expense on the club which has to organise the Contest, and unless the entry fee is high the Club is badly out of pocket. In the two last Contests American and French machines have been entered and have failed to appear. And if the Italians had also failed we should have been tens of thousands of pounds out of pocket. If Italy is prepared to go to all that expense for a forfeit of £40 per machine, then Italy must be richer than we are. Or at any rate the Regia Aeronautica must find Public Funds easier to loot than our Royal Aero Club is ever likely to find them.—C. G. G.]

THE JUHU (BOMBAY) LANDING GROUND.

In the House of Commons on June 30 in reply to a question by Major Graham Pole, the Secretary of State for India said that the Juhu landing ground near Bombay was expected to be fit for regular use throughout the year in 1932. At present it was fit during the dry season only.

STATION PRIDE.—The trophies held by the Home Aircraft Depot, R.A.F., during the season 1929-3 · From left to right and from the top: (1) H.M. the King's Cup, (2, 4, 6 and 8) Wakefield Boxing Trophies, (3) R.A.F. Senior Association Football Cup, (5) Swindon Challenge Bowl Mile Relay, (7) R.A.F. Senior Rugby Cup, (9) 21 Group Inter-Unit Boxing Trophy. (1) Bedfordshire County Mile Relay, (2) 440 Yards Relay Team Championship, (3) Inter-Section Cricket Shield, (4) Kenley Mile Relay Cup, (5) North Bedfordshire Association Football Charity Cup, (6) Small Cup, (7) Gloucester Relay Challenge Shield, (8) Imperial Club Mile Relay Challenge Cup, (9) R.A.F. Swimming Association, 100 yards, (10) Wolverton Mile Relay Challenge Cup. (1) Kenley Boxing Cup, (2) R.A.F. Mile Relay Trophy, (3) Astra Athletic Club Billiard Cup, (4) R.A.F. Cross-Country Cup, (5) Tug-of-War Challenge Cup, (6 and 9) Silver Statuette Team Boxing Championship, (7) Bedfordshire County Hospital Association Football Cup, (10) 21 Group Association Football Cup, (11) Wise Challenge Cup, (12) I.A.A.D. Shooting Championship Challenge Cup .22, (13) Inter-Section Miniature Rifle Team Championship Cup, (14) "John Bull" .303 Challenge Cup. (1) Boxing Challenge Bowl, (2) Victor Ludorum Cup, (3) R.A.F. Henlow Boy Cadet Corps Cup, (4) R.A.F. .880 Challenge Trophy, (5) Sassoon Inter-Service Boxing Cup, (6) Bedfordshire County A.A.A. Mile Championship Cup, (7) R.A.F. Athletic Championship Tug-of-War Cup, (8) R.A.F. Senior Hockey Cup, (9) R.A.F., A.A. Mile Challenge Trophy, (10) R.A.F. Revolver .20 Cup. (1) Beds. and Bucks. Miniature Rifle League Shield, (2) R.A.F. Putting-the-Shot Team Trophy, (3) Bedfordshire County Discus Championship Cup, (4) 21 Group Inter-Unit Miniature Rifle Team, (5) Feather-weight Championship Belt of Bedford (won outright), (6) The Donaldson Hudson Novices' Trophy.

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GUY FFISKE.

His many friends in the Services and in the Aircraft Industry will learn with great regret of the death of Major H. G. ffiske, who died suddenly on July 3 in the Calfont Cottage Hospital after an operation. He was at the R.A.F. Annual Dinner on June 27, and although perhaps not looking in robust health he did not seem to have anything the matter with him. He was taken ill on Monday, an operation was performed early on Tuesday, and he died of acute peritonitis on Thursday.

Guy ffiske was the second son of Mr. Henry ffiske, of Holm Close, Brundall. He was born on Nov. 3, 1888, and was educated at Eversley School, Southwold, Bury Grammar School and at the Crystal Palace School of Practical Engineering.

He joined the staff of Boulton and Paul Ltd. in 1907 and made a business trip to Argentina in 1913. And up to the outbreak of war in 1914 he managed the London office of the firm in Queen Victoria Street.

He joined the 1st East Anglian Brigade (T.F.), Royal Field Artillery, as 2nd Lieutenant in March 1909 and proved himself a very keen officer. He was promoted Captain in February 1915 and went out to France with his unit in that year.

In September 1916 he transferred to the Royal Flying Corps as an observer and in July 1917 he qualified as a pilot and was appointed Flying Officer. On the coming into existence of the R.A.F. he was given a commission as Lieutenant and Honorary Captain. In March 1918 he was promoted Major R.F.A.

In January 1919 he was transferred to the Unemployed List of the R.A.F. and relinquished his commission in September 1921, with permission to retain the rank of Major. On demobilisation he again took over the management of his firm's London depot.

During his service with the R.A.F. he served at Netheravon, with No. 63 Squadron in France, with No. 57 Training Squadron, and in the Middle East in Mesopotamia and Egypt.

Guy ffiske was one of those men who can perhaps best be described as entirely amiable. Though one knew him for something like ten years one never heard him say anything unkind about anyone or to anybody.

And yet he was by no means a weak man. He was an able engineer and very well able to keep his end up in an argument on anything which had to do with engineering, either of the ordinary kind or aircraft engineering, or on commercial subjects. One was constantly in touch with him concerning his firm's products, and whether one was discussing the construction of R.101 or the habits of Sidestrands or the possibilities of aircraft sheds in foreign parts, he knew all about the details and had thoroughly intelligent views about the general uses of these wide-apart products.

He was a worthy representative of the fine old typically English firm to which he and his family have belonged for several generations, and his place will be hard to fill. To his family and relatives one tenders the deepest sympathy.—

C. G. G.

The late Major Guy ffiske (late R.F.A., R.F.C. and R.A.F.).

MISSING.

On July 3 Messrs. Mathews and Hook left Akyab for Rangoon at 06.00 hours. At 11.00 hours they had not been reported at Rangoon and were thought to have made straight for Bangkok.

Up to July 6 no trace of the two missing aviators had been found after they left Akyab, although an authentic report said they flew over Kyaupyu, 60 miles from Akyab, on Thursday morning. The inference is that they were following the sea route to Rangoon.

An unconfirmed report says that they crashed at Taungup, which is on the coast in the Sandoway district, and about another 60 miles beyond Kyaukpyu, but so far nothing definite has been heard. Instructions have been given for the local police to search the area thoroughly.

A TRAGEDY IN FRANCE.

On July 5, according to a report in *The Times*, the Baron de Précourt, Comte Etienne de Roys and M. Ballet [or Vallat] were killed when a three-seat cabin monoplane, alleged to be British, crashed and caught fire near Villacoublay. The Baron left Villacoublay in a thick fog to fly to Clermont-Ferrand, where he meant to compete in the Grand Prix d'Auvergne.

The Baron was a very keen private owner, which is less common in France than here, and had two or three machines of his own.

AN INQUEST.

The inquest on the fatal accident to Mr. Alexander Arnold (Jock) Anderson and Mr. Charles William Hammett, who crashed in a Moth at Purley Way Warren on June 29, was held at Croydon on June 3. A verdict of accidental death was returned.

Mr. Anderson was the head mechanic of the Henderson Civil Aviation Bureau. Mr. Hammett was taking a passenger flight as Mr. Anderson's friend. Various descriptions of the movements of the machine prior to its fatal impact have appeared in the newspapers, and a number of pictures of the wreckage also received some prominence.

In fairness to aviation, which has already an undeserved reputation for being a dangerous business, the following is quoted from *The Times* of July 4 without comment:—

Dr. R. M. Bronte said that death was due to shock and injuries. Hammett's stomach was empty, and smelt strongly of alcohol. Anderson's stomach contained some clear fluid smelling strongly of alcohol. He could not say how much alcohol either had taken, or form any opinion whether the quantity affected either man's capacity to fly the machine. Both men must have taken some alcohol within an hour of death.

THE CATERPILLAR CLUB.

The Caterpillar Club has now, according to records, a membership of 287 and these members come from thirteen countries. Forty of them are officers and men of the R.A.F., of whom 16 have been saved this year and 19 during 1929.

There are 213 members in the United States Flying Services and this number is five times as big as the next highest figure, which is for our own Air Force.

The next on the list is the Polish Air Service with thirteen members, then Sweden with five. Russia is next with three. Denmark, Japan, Holland and Canada have two members each. The Royal Australian Air Force, the Serbian Air Force and the Argentine have one member each.—(the Argentine member was the Minister for War). This leaves one member whose nationality is not stated.

As thirty Governments use the Irvin Air Chute there is some difficulty in tracking these figures down.

IMPORTANT DATES.

July 13.—Yorkshire Air Fete, Sherburn-in-Elmet.
July 13.—N.F.S. Meeting at Leeds.
July 19.—Hanworth Garden Party.
July 20—Aug. 7.—International Touring Competition, starting from Berlin.
July 26.—Norwich Flying Meeting (Norfolk and Norwich Aero Club) (with R.A.F. support).
Sept. 1—6.—International Congress on Air Navigation at The Hague.
Sept. 6.—Official opening of Mr. Lindsay Everard's private aerodrome at Ratcliffe, Leicester.
Sept. 6.—Bristol Air Garden Party to the British Association.
Sept. 20.—Liverpool Air Pageant (Liverpool and District Aero Club and Lancashire Aero Club) (with R.A.F. support).
Sept. 27.—Air Pageant at Hanworth.
Nov. 28—Dec. 14.—International Aero Exhibition at Paris.

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COMMERCIAL AERONAUTICS.

THE POLICY OF IMPERIAL AIRWAYS.

On July 2, the Directors of Imperial Airways Ltd. gave a lunch at the Carlton to a number of Representatives of the Overseas Dominions who are in London for the Imperial Press Conference which was then being held. Those present chiefly represented Australia, South Africa and India. One uses the term "representatives" in preference to "delegates" because they included the wives and other feminine relatives of the delegates, who are quite probably more representative of their country than are the delegates themselves. At any rate that was the impression one gained from the intelligent conversation of such representatives of our great Overseas Dominions.

The Right Hon. Sir Eric Geddes, G.C.B., G.B.E., Chairman of Imperial Airways Limited, proposing the toast of the guests, said how much he welcomed this opportunity of telling representatives of the Press of our Overseas Dominions. something of what was in the minds of the Directors of Imperial Airways in the matter of the future development of air communication. First of all, he wished to pay a tribute to the help which the Directors had received by example, collaboration and otherwise from those pioneers who had "blazed the trail" to the Dominion Overseas, notably from those present at that gathering, Lady Bailey and Sir Alan Cobham. He also wished to acknowledge to the Air Ministry the great part it had played in enabling Imperial Airways to do so much as had been done in establishing the Empire Air Routes.

He said that Imperial Airways had known two Secretaries of State for Air, Lord Thomson and Sir Samuel Hoare,—the latter was unfortunately unable to be present. From each in his term of office, the Company had received understanding, help, encouragement and inspiration.

PROGRAMMES.

After preliminary trials, Imperial Airways had engaged upon two air routes. And after various political fortunes, the Indian route had settled down to the weekly mail service between London and Karachi, which was running with remarkable regularity and increased comfort. The second route was about to be inaugurated, and was the immediate cause of the luncheon that day, namely the London—Capetown Service.

Combined these two services would give an Empire route mileage of twelve thousand miles. The scheduled time from London to Karachi began at 7½ days, it was now 6½ days, they hoped to reduce it soon to 5 days, and in due course it would be considerably less than that. The London-to-the-Cape route would begin with 11 days. And they hoped soon to make it 9 days.

Both routes would be operated within the commercial limitations imposed by the public support accorded to them, and they would be operated with all the care and efficiency which had made Imperial Airways' operations the pride of the country, and, he said it with all due humility, the envy of the World of Civil Aviation.

Sir Eric said that he hoped to start the through route to the Cape in January as far as Lake Victoria, which would serve Kenya, Uganda and Tanganyika. The second and more southerly section to Cape Town would be opened a month or two later.

To-day, Imperial Airways were operating primarily with the financial help of the British Government, and the Cape route would be operated with the contributory help of the various Governments of Dominions and Crown Colonies and Protectorates along the route.

Financial stringency in Australia and political differences in India faced them in the extension of the India route to to Australia by way of Burma and Singapore. But he hoped that in time these would be overcome.

On the subject of subsidy, Sir Eric said that every great country in the World recognised that Civil Aviation could not fly by itself. It must have help. Every great country helped its own civil aviation and believed that this highly scientific product of our time would, in due course, command such public support as would make it self-supporting. Again in all humility, he made the boast that Imperial Airways had come nearer that ideal than any other major operating organisation in Civil Aviation in the World. Confirmation of this statement could be had by reading Lord Thomson's speech in the House of Lords recently.

[Nevertheless the fact remains that the mileage flown by Imperial Airways and the value of the aircraft bought by Imperial Airways is small compared with the mileage flown

ORIENTAL VISITORS.—Prince and Princess Takamatsu, of Japan, during a visit of inspection to Croydon Aerodrome. Major L. F. Richard, C.A.T.O. of the air port, is on the left. The royal visitors are in the middle of the picture. In front on the right is Lord Thomson, Secretary of State for Air, and behind him can be seen Sir Sefton Brancker and Mr. F. G. L. Bertram, Director and Deputy Director, respectively, of Civil Aviation.

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by unsubsidised aeroplanes within the British Empire and the value of such aircraft. Considered as customers of the Aircraft Industry, Imperial Airways Ltd. are not of the first importance.—C. G. G.]

Under these circumstances, and claiming that Imperial Airways were as economical in their operation, as skilled in their knowledge, and as well organised and equipped as any civil flying service in the world, Sir Eric urged that the views of Imperial Airways deserved full support of the Press of the British Empire. He admitted the power of the Press, and therefore made this appeal to the eminent Representatives of the Press present that day.

UNIFIED CONTROL.

Turning to the very important question of unified control, he pointed out that in the interests of efficiency, comfort, punctuality, progress and economy these two great Empire routes to Australia and the Cape should be under one operating hand and one financial hand. He said that the best could not possibly be got out of Civil Aviation if each section of these routes was to be operated separately. All those who had studied the mistakes of railway development on a sectional basis would realise the enormous handicap caused by differences in gauges,—as exemplified in Australia. And some day this question would have to be faced by the Government of that great Dominion.

Sir Eric pointed out that in Aviation, we should have far greater difficulties if the control of the main trunk line were sectionalised. The greater the speed, the greater the need for co-ordination.. Railway rolling stock to-day had reached a more or less stable condition and stock twenty-five or thirty years' old was still used. But in Aviation every year brought fresh inventions which made the products of two or three years ago obsolete. And so the big problem of equipment was the more difficult.

If an Empire route were run in sections, one section would be more successful than another, one would be able to afford improved equipment, another section would not. Each section would feel that it had to operate with the smallest number of aircraft. And when time was lost on one section, the next section would have no pride in making up time which had been lost by the previous section.

Even such questions as rest-houses and intermediate halts could not be determined finally if the route were run in sections, because as it increased, there would be so much difficulty in getting each section to conform with the ideas of other sections.

Looking at the position to-day, our India service provided an example. Before long Imperial Airways would be arriving in Karachi with four-engined aeroplanes carrying a pay-load of over three tons, with seating capacity for anything between twenty and forty passengers. And they were told, although they did not know, that the connecting planes to Delhi and Calcutta, run by the Indian Government, would have a carrying capacity of about a quarter of a ton.

The result would be chaos, and if such a mistake were made initially it could only result in failure of the through route and retard their development. The state of their economic independence would be indefinitely postponed. In these days we read and talked much about Empire Unity, and the Empire as an economic unit. There was no greater factor in making for understanding and development of trade than quick communication.

Sir Eric begged all those present to ponder this question and if they could do so, to come to the decision, which he and his colleagues had come to, a conclusion in which he believed the Secretary of State for Air and his staff agreed, namely that the only hope of rapid, successful, consistent and economical development of these Imperial routes lay in the co-ordination of all sections of this Empire concern, and that those routes should be from end to end under one control.

CO-OPERATION.

The Dominion, Colonial and Protectorate Governments very properly thought to safeguard the revenue which they were devoting to this Imperial air route. To that end the Imperial Government had two Directors on the Board. But as this was an Empire affair the Directors felt that in some way or another they must have co-operation by calling a representative from these Governments into their councils.

The Directors wanted to maintain and strengthen the interest of these Overseas Dominions. They wanted the knowledge of local conditions and they wanted to know when these Governments were pleased or displeased, and so, with the help of the Governments concerned, they intended to devise means for such co-operation.

It was not exactly easy to devise the right machinery for this, without making it too cumbersome, and at the same time they must maintain the essentially commercial character of Imperial Airways. The Directors had therefore asked one of their colleagues, Lt.-Col. Barrett-Lennard, to forego his holiday this year, and to go to South Africa to discuss this and other matters with the people on the spot, and he would do so after consultation with South African representatives in London.

They also hoped to discuss these problems with representatives of the Empire Governments on the routes between Cairo and the Union of South Africa. And he hoped that a working scheme suitable to the shareholders would be the result.

FEEDER LINES.

Turning then from the main trunk line to feeder lines, Sir Eric said that just as they felt that the main line must be under one single control, so they were equally sure that the development of feeder lines and local services in territories through which the main line passed, would best be operated by local effort. And he said that the policy of Imperial Airways would be to help such enterprises in every possible way.

He wished to be clearly understood when he said that this did not mean that Imperial Airways would not consider the development of feeder lines themselves. In fact they hoped to do so. But they would be glad if efficient and well-run feeder lines were developed locally by local enterprise and they would be prepared to give help, advice and co-operation in such undertakings.

Imperial Airways would welcome them and would treat them as friends and allies, and would be prepared to help them in every consistent way possible. But he reiterated the statement that he regarded the unified control of the main trunk route as the keystone and foundation of British Empire Air Communication.

[On this point one is entirely in agreement with Sir Eric Geddes. But at the same time one feels sure that in due course somebody will produce aircraft which will not be very costly to buy and will be economical to run, and then those same aircraft will run directly in competition with Imperial Airways along the main trunk routes, very much as unsubsidised lines of steamships, or even tramp steamers, run along the same routes as do our great shipping lines, and by their competition keep the old-established main lines from becoming also old-fashioned. Competition is good for trade, and the sooner competition starts with Imperial Airways the better for Imperial Airways.—C. G. G.]

LORD THOMSON'S VIEWS.

Lord Thomson of Cardington, Secretary of State for Air, seconding the toast of the guests, indicated his agreement with all that Sir Eric Geddes had said about the need for unification of control in the trunk lines of the Empire.

For the benefit of those who have not read his figures for the relative cost of air transport, and because every reader of THE AEROPLANE does not invariably read every issue of this paper, they are worth repeating here.

Lord Thomson said that if a person travels by air in France 70% of the cost of the ticket is paid out of public funds. In Germany 68% is paid by the public funds, and on Imperial Airways only 50% is so paid. Putting the figures another way he said that the amount of subsidy per ton-mile, which was a more accurate measurement of the efficiency of the services, was 16s. per ton-mile in France, 9s. 4d. in Germany and only 6s. 9d. in Great Britain.

Furthermore, Lord Thomson said that the subsidy for the European route alone of Imperial Airways amounted only to 3s. 6d. per ton-mile, because of the high efficiency of the aeroplanes used (Armstrong Whitworth Argosies, Jaguar engines) and the amount of traffic in relation to overhead charges in Europe. The higher amount mentioned was incurred overseas because of the comparative infrequency of the service and the consequent higher proportion of overhead charges.

In regard to the Cape-Cairo route, he expressed his gratitude to all the Governments of Africa who were affected by the proposed air line for the way they had paved the way in promising subsidies to the line. In regard to the political difficulties in India, he said he had the greatest hopes in the approaching Imperial Conference. [Herein Lord Thomson showed his usual unfailing optimism. Just precisely what influence an Imperial Conference can possibly have on a lot of rebellious Dravidians, stirred up by Russian Bolshevik propaganda and spoiled by our absurd endeavours to educate the uneducatable, is difficult to see.—C. G. G.]

Speaking on behalf of the Government, Lord Thomson said he could give his hearers the assurance that the Government would be prepared to listen to the views of the Dominions and the Colonies, whatever they might be. The Government was approaching the Conference with an open mind and would be glad to examine any possible suggestions.

One of the most interesting statements made by Lord Thomson was that Mr. George Woods Humphery had been

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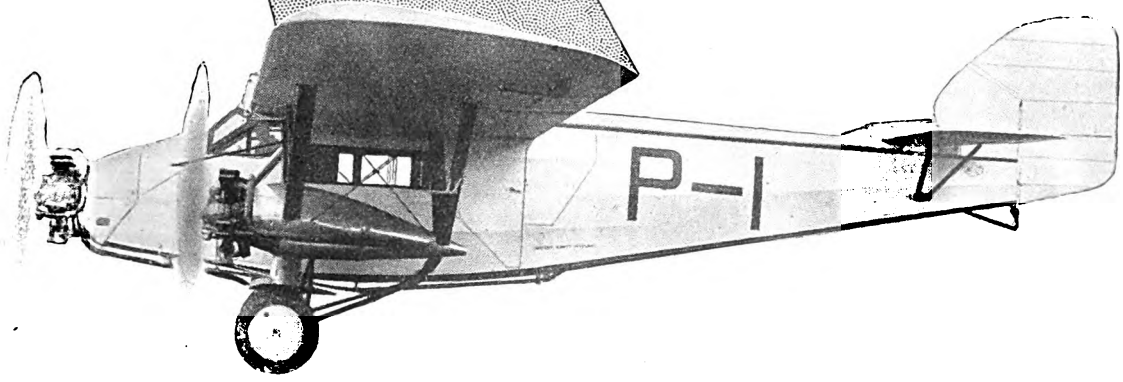

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2nd Place — D. H. MOTH (Gipsy II)
Pilot: Mr. A. S. Butler.

3rd Place — BLACKBURN BLUEBIRD (Gipsy I)
Pilot: Flt. Lt. H. R. D. Waghorn.

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elected a member of the Board of Imperial Airways Ltd. and would hold the position of Managing Director. [This is an appointment which will give the greatest satisfaction to those who know the excellent work that Mr. Woods Humphery has done for Civil Aviation during the past eight years or so. His connection with Civil Aviation began with Daimler airway,—when Mr. Frank Searle was Managing Director and Mr. Woods Humphery was General Manager. He showed then a talent for organisation which has since been developed by experience and has been used with excellent results in the service of Imperial Airways.

Mr. Woods Humphery strongly objects to personal advertisement, but on this occasion something must be said. He is an engineer with that thorough training which is only to be had in its full degree on the Clyde. He served his time as an engineer with Yarrows, and became one of old Mr. Yarrow's closest friends after starting in the lowest ranks of the service of the Yarrow firm. There could be no higher testimony to any man of engineering ability than that. In the War 1914-18 he joined the R.F.C. and became a war-pilot of outstanding ability. He attained the rank of Major, and did much good technical work by virtue of his training.

Like everybody with a strong personality and a strong will and the determination to have things done properly, Mr. Woods Humphery has made enemies as well as friends. And in his determination to make the organisation of Imperial Airways thoroughly efficient he has had to be hard on people who might have done well enough in easier jobs. But the fact remains that Imperial Airways under his management has come nearer being a paying proposition than any other air transport concern in the World. And that is the fullest justification of all the acts and all the policy of Mr. George Woods Humphery.

One can wish him no better success in his new position than that he may continue as he has begun, so that the subsidy of the European route of Imperial Airways which is now only 3s. 6d. per ton-mile as compared with 16s. per ton-mile in France may soon become a clear profit of 3s. 6d. per ton-mile. The shares of Imperial Airways, which pay a dividend at present purely by virtue of the subsidy, now stand at 24s. 6d. per share. One hopes to see them at 246s. per share under the skilful management of Mr. Woods Humphery.—C. G. G.]

THE REPLIES.

The toast was replied to by Mr. W. McKenzie, of South Africa, and the Hon. Theodore Fink, proprietor of *The Melbourne Herald*, on behalf of Australia. Unfortunately, owing to the lateness of the hour, one was unable to stay and hear the views of these two distinguished Representatives of the Dominions, both of whom combine the qualities of being, or having been, politicians and journalists.

After lunch the guests were taken to Croydon and were shown the excellent fleet of aircraft, and the system of repair and maintenance organised for Imperial Airways by Mr. Hall. They were also shown the workings of the Control Tower and the methods by which messages are received from, and sent back to, aircraft in transit. A number of the visitors took the opportunity of having flights over London in Imperial Airways liners.

The gathering was very representative, and included quite the best element from the various countries concerned. Mr. McKenzie was the Chairman of the South African section of the Empire Press Conference and Mr. Fink was Chairman of the Australian Section.

Mr. J. H. Thomas, who was until recently the Minister particularly concerned with curing unemployment (and was not particularly successful at the job) was also present, and one hopes that he learned something to his advantage from the guests. And Sir Victor Sassoon was there, as representing all that is best in Bombay, as well as being a member of the Indian Legislative Council.

Air Vice-Marshal Sir Sefton Brancker was there as Director of Civil Aviation; and Air Vice-Marshal T. I. Webb-Bowen, Air Member for Personnel on the Air Council, was there, presumably by virtue of the excellent work done by the personnel of the R.A.F. in preparing the route all the way from Cairo to India and running the air mails before they were taken over by civil aircraft.

Sir Arthur Nicholson, the present Secretary of the Air Ministry was there, as was Mr. C. Llewellyn Bullock, the future Secretary of the Air Ministry. The Air Ministry was also represented by Sir Sigmund Dannreuther.

The Board of Imperial Airways was represented by Lieut.-Col. Barrett-Lennard, Sir Herbert Hamblin, Sir Samuel Instone, and Sir Vyell Vyvyan.

AIR TRANSPORT IN THE HOUSE OF LORDS.

In the House of Lords on July 3, Lord Thomson, Secretary of State for Air, moved the second reading of the Air Transport (Subsidy Agreements) Bill which has passed the House of Commons. Lord Thomson said that the Bill enabled the Air Ministry to enter into long-term agreements with regard to aviation.

Lord Stanhope, said that he did not know whether, under present legislation, the Minister had powers to deal with low-flying aeroplanes. If so this might be an opportunity on which, by amendment on the next stage of the Bill, he might acquire powers for the Government to deal with such aeroplanes. He had often seen aeroplanes flying over the North Down so low that he expected them to crash. These aeroplanes were going to and from the Continent. He realised that the Government could deal only with British aeroplanes but he thought that if it were known that British aeroplanes flew above a certain height the advantage would be to the British companies.

Lord Thomson said that he was not sure that it would be appropriate to put such a clause into this Bill. He entirely agreed that it was desirable to prevent low flying by aeroplanes, both in the interests of safety and in order to prevent aeroplanes from being a nuisance. There were regulations already but whether he could make the matter statutory or not was another question.

The Bill was read a second time.

CROYDON ON PARADE.

On July 3 Prince and Princess Takamatsu of Japan inspected Croydon Aerodrome. During a visit of four hours they watched liners arrive and depart, and were shown the control tower, wireless room, beacons, rocket apparatus, and all the means by which commercial airlines carry on through the seasons, in fog and by night.

They also inspected various machines and the Prince made detailed inquiries on the subject of flying clubs. The method used by the R.A.F., but as yet undeveloped for civil purposes, of dropping mails from aircraft, was demonstrated to the party, and postcards with air-mail stamps were distributed to them from the container which parachuted to earth.

The Royal visitors were received by Lord Thomson, Secretary of State for Air, Mr. Montague, Parliamentary Secretary, Sir Sefton Brancker, Director of Civil Aviation, and Major L. F. Richard, chief aerodrome officer, who conducted them on their tour.

CLOSING THE GREAT CIRCLE.

Wing Cdr. Kingsford Smith, whose honorary step in the R.A.A.F. was conferred on him the same day by the Australian Government, flew from New York to Chicago with his crew on June 2. His aim was to finish the circumnavigation of the earth with the Fokker monoplane, *Southern Cross*. The final stage was from Chicago to Oakland, California, from which he set out last year to fly the Pacific.

The monoplane left Roosevelt Field at 07.05 hours and arrived over Sky Harbour Aerodrome, Chicago, at 14.47 hours a day later.

On July 5 the *Southern Cross* landed at Oakland, California, and thus completes the circuit of the globe, the first circumnavigation which included territory on both sides of the equator. Wing Commander Kingsford-Smith and his crew were given a tremendous reception. The leader was presented with a silver service. Mr. Stannage, the wireless operator, has been made an honorary member of the American Veteran Wireless Association.

ANOTHER "RECORD."

On July 6, at 23.20 hours, Messrs. John and Kenneth Hunter landed their Stinson (300 h.p. Whirlwind) at Chicago after 553 hours 41 minutes and 30 seconds in the air. They made 223 refuelling contacts during the three weeks, burned 7,630 gallons of fuel and used 400 gallons of oil. Their approximate mileage was 41,475, which matters little as they were not going anywhere. But what matters is that they earned £40,000 in concessions, gifts and testimonials.

An offer of £20,000 for the stage and film contracts of the flight awaits their signature, which is the answer if any should inquire what use such a flight is to anybody. Just as long as the public is as gullible, and the publishers and film producers know it, and impecunious miners know they know it, just so long will flag-pole sitting and refuelling endurance flights continue to be endured by those who need the money and will take the chance.

Endurance flying is not all just sitting and waiting. The brothers Hunter pronounce it "plain hell, the last word in misery." The motor made them totally deaf, amiable busybodies who flew up to see them kept them awake and anxious, and during the latter part of the flight oil pervaded the cabin and made it filthy. And above all, one assumes that the spur of worth-while achievement must have been lacking.

Even the "last word in misery" is endurable for the sake of real contributions to any cause, and the Hunters endured it for their own sake, and the bonus which each added hour brought them. On the face of things the flight was abysmal folly, but the rewards were waiting, so who shall blame the brothers Hunter?—F. D. B.

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FOR ALL LIGHT AEROPLANE PILOTS.

(1) Same high-class workmanship and efficiency as in Standard Irvin Air Chutes,
(2) Slower rate of descent.
(3) All silk parachute.

£60

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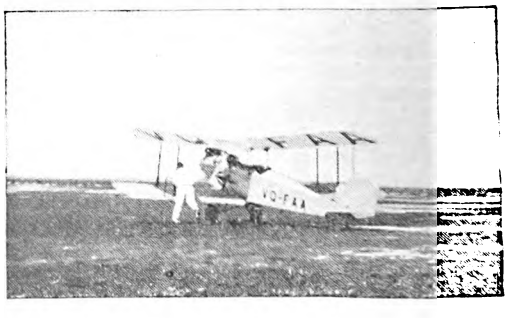
At Suva, Fiji . . .

there's a Spartan performing yeoman service in many ways

THIS Spartan is a standard three-seater type, belonging to Capt. G. Fenton, M.C., who will utilise the machine to inaugurate a seaplane service between Suva on the largest island, Viti-Nevu, and the surrounding islands in the group.
In addition, this Spartan is equipped with a land under-carriage; so that it may be used for inland flights: and for instructional purposes on land or water; dual control is a feature of the construction.
The Hermes-Spartan is an adaptable machine . . . to almost any possible requirement. It is robust, and capable of high performance under every condition; its aerobatic certification stands at 1680 lbs. As a seaplane it gets off the water in 23 seconds, at 1850 lbs. all-up weight . . . even in calm air.
Spartans are supplied as land machines, seaplanes, or skiplanes.
Two-seat and three-seat models.



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WESTON, SOUTHAMPTON

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TRADE NEWS

A ROYAL INAUGURATION AT RADLETT.

On July 7 His Royal Highness Prince George landed at the new aerodrome of Handley Page Ltd., at Radlett, and formally opened it. He arrived in a Wapiti (Jupiter) piloted by Sq. Ldr. F. S. Don and his equerry rode in a similar machine. The Royal party was escorted by three Siskins (Jaguar) of No. 41 (Fighter) Squadron.

The opening of the new aerodrome was part of the firm's twenty-first anniversary celebrations. Prince George, in his remarks, mentioned the seriously increasing pressure on ground space which is being caused by building construction and multipying roads, and he made the point that aerodromes promise to save more ground than they occupy in the amount of traffic they are likely to divert from the roads to the air. He visualised the time when only heavy freight would move by land.

After the formal opening a flying display was given of some of the machines which were lined up. They were mostly of Handley Page design, and included a Clive (two Jupiters), four Hyderabads (two Napier Lions), one Hinaidi (two Jupiters), the Gugnunc (Mongoose), a new bomber recently finished by the firm (two Rolls-Royce F.), and several visitors.

Sq. Ldr. Tom England gave a particularly good display on the Gugnunc, trailing it about the aerodrome on its tail and using the super-slottification as only one thoroughly familiar with the machine could do.

He later took up the new bomber, which seems to have a good turn of speed in the air and lands with uncanny deliberation. The machine is interesting in the position of the fuselage, which is slung under the upper wing, presumably to achieve the result of using a straight, slender fuselage, a very low undercarriage, and still get a good angle on the ground. The bomb racks are inside the lower wing.

The Hyderabad and the Hinaidi were also demonstrated, and then the party went in to luncheon which was served very sumptuously in a marquee.

At the head table were H.R.H. Prince George, K.G.; Marshal of the Royal Air Force The Lord Trenchard, The Lord Thomson, Secretary of State for Air; Air Marshal Sir Edward L. Ellington, Air Marshal Sir John F. A. Higgins, the Rt. Hon. Sir Philip Sassoon, Chairman of the Royal Aero Club; Sir Sefton Brancker, Director of Civil Aviation; Mr. F. Montague, Under-Secretary of State for Air; Mr. Handley Page, and Mr. S. R. Worley, chairman of the company.

After lunch the engines of the Wapitis were started with somewhat less trouble than at Ipswich, and they were able to take off in tight formation. The "tug-of-war" involved in the starting operation did not look any less silly though, and even the coffee-mill-cum-cream-separator effect of a hand-inertia-starter would be far less humiliating. An arrival by air is wholly desirable pageantry for such an occasion, but the effect suffers if the departure smacks so thoroughly of burlesque. [Can one imagine a Royal motor-car which could only be started after a State Ceremony by half a dozen men pushing behind amid a cheering and jeering crowd? And why should a Royal aeroplane be any less dignified than a Royal car.—C. G. G.]

Among the guests who came by air were Sq. Ldr. the Hon. F. E. Guest in a Tomtit (Mongoose), Sq. Ldr. Kubita, Czeschslovakian Air Attaché, in what looked like an Aero A.34 (Walter Mars 155 h.p.), and Mr. A. S. Butler in a Puss-Moth (Gipsy III).

In the very spacious main shed the fuselage of the new forty-seater was on view, and beside it the much patched but honourable remains of the "Yellow Peril," the aeroplane built by Mr. Handley Page in 1910 in which the late Mr. Petre ("Peter the Painter") made the first flight through London. It has swept-back wings like the German Taubes, in an effort to get inherent stability.

A CELEBRATION.

On July 7 a small private lunch was given by Lord Wargrave, P.C., the Chairman of Rolls-Royce Ltd., to Sir Henry Royce, Bt., to celebrate the occasion of the baronetcy conferred on him by H.M. the King. Among those present were the Rt. Hon. J. H. Thomas, P.C., M.P., Secretary of State for the Dominions, Lord Wakefield of Hythe, Col. the Master of Sempill, and Sir Max Pemberton.

MONEL METAL.

The fact that Monel Metal, an extremely resistant alloy of nickel and copper, was being used in the aircraft industry in America was reported in THE AEROPLANE for Feb. 6, 1929. This alloy, which is made up of nickel, copper, iron, manganese, silicon and copper in the approximate proportions of 69, 28, 2, 1/3, 1/3 and 1/3 respectively, is now being used in this country. One learns from Monel-Weir Ltd., who are the sole concessionaires in Great Britain and Europe for Monel Metal, that at least five well-known aviation firms in this country are using this material.

Monel Metal is heavier than duralumin, and weighs, one believes, about three times as much as the latter metal, but it is very tough and resistant to corrosion of all kinds, even at high temperatures. In fact the ability of this alloy to withstand the attacks of alkalis, hot gases, saline solutions, and most acids, has made for its wide use in what are known as the process industries. Nine pages of the useful booklet M.M.3, which the firm publish about the uses of Monel Metal, give, in column form, the uses to which the alloy can be put.

To return to Aviation, the Supermarine Aviation Works Ltd. have been using 6 ft. x 2 ft. Monel Metal sheets in thicknesses which vary from 18 to 24 S.W.G. This material has been used for the sheathing of seaplane floats and has also been folded into angles and channel sections, which have been used for the float structure proper. This firm

AN HISTORIC OCCASION.—H.R.H. Prince George formally opening Radlett Aerodrome, the new testing ground of Handley Page Ltd. The ceremony took place in the assembly shop beside a relic of the firm's beginnings and an example of their work to-day. The aged "Yellow Peril" monoplane and the 40-seater fuselage can be seen in the background.

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have also used the material for petrol-tanks. And they also use Monel Metal rivets.

Vickers (Aviation) Ltd. have been using quantities of hot-rolled Monel Metal rod, up to 3½ in. dia., which Monel-Weir Ltd. rather think is being used for valve-seats.

The Fairey Aviation Co. Ltd. have used Monel Metal rivets in the assembly of all-metal aircraft. Such rivets have been put where they are in contact with duralumin and stainless and other steels.

The Gloster Aircraft Co. Ltd. and Boulton and Paul Ltd. have also been experimenting with Monel Metal. Thus one can see that there is some reason for supposing that the anti-corrosive properties of Monel Metal are going to prove of value to the aircraft industry.

FILLING A GAP.

A careless Printer and an over-pressed Editor together were responsible for an amusing interlude in last week's work. On Wednesday a letter arrived from H. J. Heinz and Co. Ltd., which reads as follows:—

Dear Sir,—A well-edited publication is a joy to us, whatever its subject matter: consequently THE AEROPLANE is one that we like to browse through when it makes its weekly appearance in this office.

As we are somewhat interested in the number "57," we looked down the list of entrants for the King's Cup, on page 1110 of your issue of June 11th, to ascertain the name of the machine bearing this number, and the pilot's name,—but number 57 was missing! Every one of the 96 entrants was given with the exception of this one number!

What could it be? Had the Editor any personal animus against us, or is it possible that an error of omission was made?

(Signed) H. J. HEINZ CO. LTD. Per: H. CHEYNE.

P.S.—Another item of interest to us was on page 1126, as the Arctic Air Route explorers, as usual, are carrying supplies of Heinz Food Products.

Investigation of the original list of entrants for the King's Cup Race, as supplied by the Royal Aero Club, disclosed the fact that the missing number 57 was G-ABAX, entered by Sq. Ldr. the Right Honourable F. E. Guest, and was a Hawker Tom-Tit with an Armstrong Siddeley Mongoose IIIa engine, identical to the machine entered by H.R.H. the Prince of Wales.

Reference was actually made to this machine in the preliminary remarks printed before the list, and it was counted into the numbers of machines of different types entered. One can only imagine that the mistake happened because No. 56, a Gipsy-Moth, was also entered by Sq. Ldr. Guest, and the Printer must have thought that there must be something wrong, the same entrant having two aeroplanes.

This lamentable error might have been avoided altogether if the H. J. Heinz Co. Ltd. had entered a machine of their own and had insisted on having No. 57 as their racing number. One can only hope that this explanation fills the gap as well as Baked Beans have filled many gaps.

ALL CLEAR—ALWAYS.

A new safety-glass is being made at Slough. This is Protectoglass, and the firm who manufacture it have adopted the effective slogan of "All clear—Always."

There are five points upon which the manufacturers lay particular emphasis. The first of these is permanent crystal clarity, and the makers claim that Protectoglass does not discolour. The next is that of absolute safety, as this glass is claimed neither to shatter or fly.

Protectoglass is stated to be the lowest-priced super-quality glass on the market. No sealing of the edges is required, as the processes used in the manufacture of Protectoglass are such that it is not affected by atmospheric conditions. The factory has been carefully planned for mass production, with the result that prompt service and immediate delivery are normally available.

People who are interested in safety-glass should write to Protectoglass Ltd., Farnham Road, Slough, Bucks.

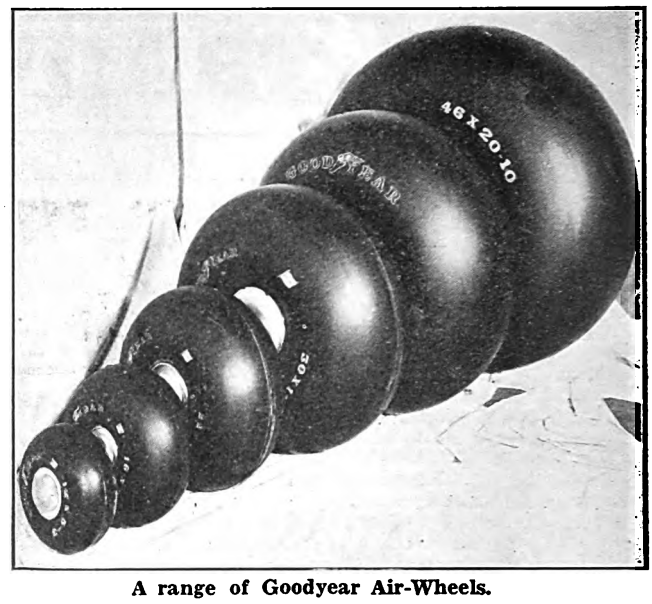
AIRWHEELS.

An experienced American pilot writes of the Goodyear Airwheel to the Goodyear firm as follows:—

In regard to my experience with the Airwheels, I would say that as far as flying of the airplane goes, I can notice absolutely no difference, but on the ground it is like a different machine. It can be taxied around in a strong wind without the slightest feeling of going up on one wing. A week ago Saturday I had been flying about three or four hours and had not noticed that the wind was very strong. I then took out one of our standard machines in a test and almost upset it.

Last Thursday I was coming up from Washington in my plane and had a forced landing near Red Bank, N.J., due to the gasolene feed stopping. It was 3.45 in the afternoon and according to the New York newspapers the wind at lower Manhattan was blowing 56 miles an hour at this time. I cannot vouch for this, but I know that when my Avian had finally landed on a hill the air speed indicator still registered 40 miles an hour. I know that with the ordinary wheels and tyres the machine would have undoubtedly turned over.

I am now making up two new struts for my undercarriage in order to do away with the shock-absorber entirely, as I do not think it is of any use.



A range of Goodyear Air-Wheels.

STENTORIAN AID.

Siemens-Schuckert (Great Britain) Ltd. are well-known for their broadcasting equipment, very largely as the result of the action of the large daily and evening papers who have Siemens-Schuckert broadcasting vans touring the country on various stunts. One of these vans was at the Whitsun Gliding Meeting at Itford.

This firm are now making arrangements for their Amplifier Department, which looks after these vans, to take an active interest in aviation. The firm feels that a completely equipped and self-contained broadcasting unit, which has the further advantage of complete mobility, will prove of outstanding value to the organisers of flying meetings.

A further point of real value is the fact that within three minutes of coming to a halt the loudspeaker can be turned on full blast. And full blast means that it can be heard a mile away under normal conditions.

This mobile unit is a big 9-ton vehicle with an eight-cylinder Krupp engine. This engine is used to drive a three-part generator which produces a 1,500 volt current for the high tension, 220 volts for the field of the loud-speaker, and the low tension current, which is also used for the internal lighting.

The Siemens Blatthaller loud-speaker is carried inside the car and is lifted above the roof by a hydraulic press. The speaker can be rotated in any direction though there is none of the directional effect that obtains with a horn,—the sound seems to flood all round.

The sound-proof cabin is at the back of the car and here are the microphone and master controls. A portable rostrum and microphone are also carried in the car so that out-door speeches can also be broadcast by the car. As well as the microphones, a gramophone pick-up is carried in the sound-proof room and with this any records can be broadcast. The writer had the loudspeaker demonstrated and got the impression that it was really good. Deep bass notes and shrill treble were equally well reproduced.

The equipment includes a long-range radio set so that the programmes from any large station in Europe can be broadcast through the speaker.

The van also carries another loud-speaker and a special tripod for its erection so that the broadcasting source can be placed right away from the car if this is necessary or if an additional unit is required.

Organisers of Flying Meetings, and especially those who are getting ready for next year, would do well to get into touch with Mr. L. E. Hermes of the Amplifier Department of Siemens-Schuckert (Great Britain) Ltd., 22, Betterton Street, Drury Lane, W.C.2, who will be glad to arrange for a demonstration and to supply any information that might be required.

AS USUAL.

The following cable has been received by Titanine-Emaillite Ltd., of 175 Piccadilly, W.1., makers of the world-famous Titanine Dopes and Aircraft Finishes:—

Tetafree Piccy London—

Kingsford Smith's machine *Southern Cross* as usual doped with Titanine—FOKPLANES.

Following on this comes the news that seventy-five per cent. of the machines which finished in this year's King's Cup Race were doped with Titanine, including the first, second and fourth.

For the eighth successive time a Titanine-doped aeroplane has won the King's Cup.

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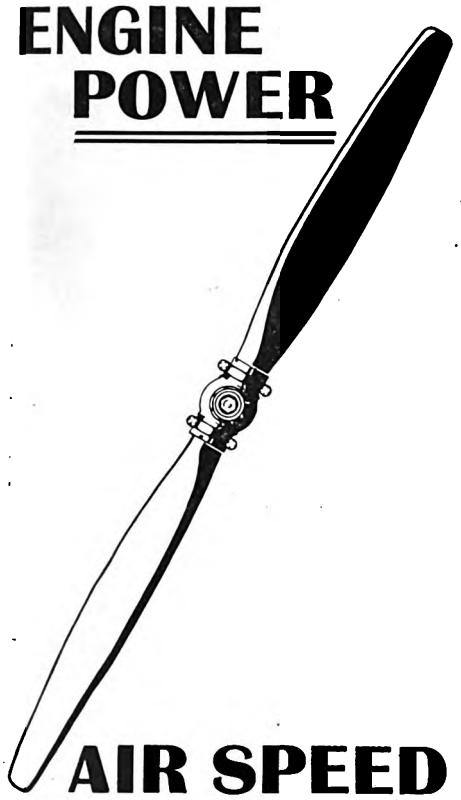
ENGINE POWER



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THE selection of a propeller deserves as much care as the selection of a power plant. The M.P. Hollow Steel Propeller is the answer to the more critical standards of modern constructors. No other propeller embodies the exclusive features . . . . making for efficiency, reliability, and durability . . . . which are incorporated in these propellers. The propeller is made entirely of steel, and consequently is not liable to abrasion or erosion. The hollow laminated construction enables the new efficient biconvex sections to be utilised. In addition, it ensures tremendous strength. The blades are detachable, so that only one need be carried as a spare. Finally, the pitch is rapidly adjustable, ensuring maximum efficiency in any individual aircraft for any required conditions. These unique features are obtained with a lightness of construction which makes the M.P. unique among metal propellers. Modern aircraft demand the increased efficiency and durability obtainable in this modern propeller.

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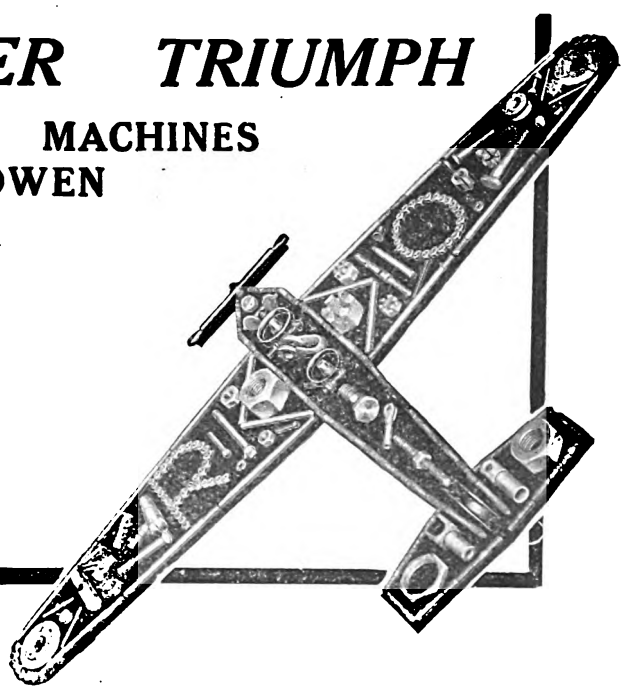
HAS BEEN ACHIEVED BY MACHINES FITTED WITH RUBERY, OWEN AEROPLANE COMPONENTS.

85 OF THE MACHINES ENTERED FOR THE KING'S CUP AIR RACE were fitted with our components.

The reason is:—
Our customers know that the parts we make can be relied upon for
QUALITY, ACCURACY & FINISH.



RUBERY, OWEN & Co.

DARLASTON, SOUTH STAFFS. 21 Years' Experience.

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THE FAWLEY REFINERY.

Great Britain has all sorts of industries that turn out a finished product from raw materials which have to be shipped to the country and this is especially the case in the mining world. A surprising amount of the world's supply of lead, tin and probably zinc is smelted in this country although the largest sources of these supplies are abroad. Another example of this is the enormous aluminium works at Fort William where the finished article is produced from the raw material.

A parallel to this is found in the Petroleum Industry. In this the crude petroleum is shipped to this country from many sources abroad and discharged at various refineries where the crude is broken into its numerous components from which are produced petrol, kerosene, fuel oil and asphalts.

A particularly up-to-date and well-laid-out plant of this kind is that of the AGWI Petroleum Corporation Ltd. at Fawley, on Southampton Water, and on June 23 a party of Press representatives, of the firm's customers and some of their own staff were taken to Fawley to hear something about its operation and to see the processes which from the crude petroleum produce Pratt's High Test petrol, Ethyl petrol, and other petroleum products.

The party was driven to and from Fawley in a fleet of Daimler cars which made for comfortable travelling. The English countryside is at its best at this time of the year. Before making an inspection of the Refinery, the party was entertained to lunch at the Falcon Hotel, in the village of Fawley, and after this meal three short speeches were made.

MR. THOMAS HORNBY, who is chairman of the Marketing Committee of the Anglo-American Oil Co. Ltd., and was representing the Directors, explained that the name AGWI was derived from the Atlantic Gulf and West Indies Steamship Lines, who with various English Steamship Lines, such as Lambert Bros., founded the original concern.

He drew attention to the fact that many Continental roads are finished with dressing from the AGWI Refinery, which exports large quantities of this material to the Continent, and said that the Anglo-American Oil Company employed upwards of 9,000 British workpeople. Speaking of the magnitude of the plant at Fawley he said that 800,000 tons of petroleum products were handled there last year and this figure was constantly increasing.

The Refinery had an area of 650 acres and one and a quarter miles of coast-line along Southampton Water. Some 700 hands were continuously employed there. The output had increased more than three times from 2,000 to 7,000 barrels per day. In the Refinery was fifty miles of piping. 250,000 tons of fuel oil had been delivered from Fawley to the Cunard, White Star and Hamburg-Amerika Lines. Mr. Hornby stated that the Anglo-American Oil Company owned 3,000 vehicles on the roads, 125 vessels and 1,000 distributing stations, all of which have been built, and are run, by British labour.

MR. C. E. COTTERELL, who is the Southampton Manager of the Cunard Steamship Co., replying for the guests, and referring to the fact that steamships use the heavy oil left after petrol has been extracted from the crude oil, said that the concern he represented was in the position of residuary legatee and they had to pay very dearly for what was left.

MR. F. E. SMITH, Clerk of the New Forest Rural District Council, also replying for the guests, said that the AGWI Corporation was being looked to for relief of unemployment, and although the Corporation might feel his Council were putting difficulties in the way of founding a great business, yet the Council had every sympathy with the work of the Corporation, though they had at the same time to preserve a large view and ensure the rural amenities of the district which so closely bordered the New Forest.

MR. P. G. A. SMITH, Advertising Manager for the Corporation, then explained the arrangements which had been made for the visitors to see the Refinery, and one must certainly congratulate him on the success of his organisation.

The fuel oil used by the big steamships is delivered in special barges with their own pumps. One was astonished to learn at the lunch that a liner can be given 5,000 tons of fuel oil in five hours from these tenders.

The party was then split into a number of groups which were then guided round the Works. The visitors were thus enabled to see how the crude oil is pumped from the tanker at the end of the jetty along pipes to the main crude oil storage-tanks. This jetty, which has 30 feet of water even at low tide, is a familiar sight to those who have been up and down Southampton Water.

There are other points of particular interest about this jetty which is connected with the plant by an elevated ropeway which is used to load ships with barrels.

Another feature of peculiar interest are the pipe-lines through which hot asphalt is pumped into a special ship. Once in the ship the asphalt is kept at a high temperature by steam pipes so that the material may be pumped out with the least possible delay. To the uninitiated the idea of sailing the seas with a cargo of molten asphalt seems distinctly emotioning!

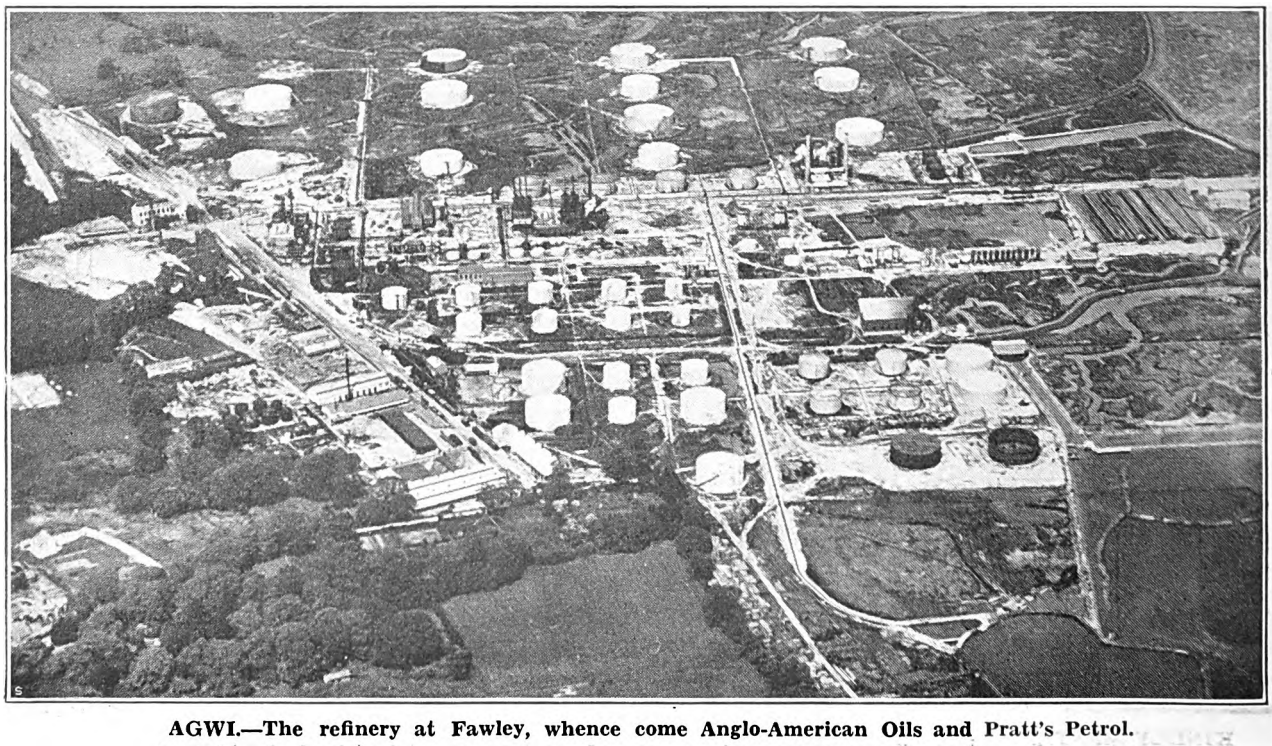
The crude oil, after arriving in the storage tanks ashore, is pumped to the "crude" plant, where by distillation are obtained the straight-run Pratt's motor-spirit, the tractor oil distillate, the raw material for the Cracking Plant and the residue which is fuel oil.

By Cracking is meant a process whereby the heavy hydrocarbons of the raw material for cracking—or the Cracking Stock—are split into low boiling fractions. This is achieved, roughly speaking, by forcing the cracking stock through comparatively small tubes in a furnace at a very high pressure,—say 900 lbs. per sq. in.

The residues from the cracking plant are blended as fuel oil with those from the crude plant. The cracked spirit is next thoroughly mixed with sulphuric acid for cleansing purposes. After this the waste acid liquors are separated by gravity, and the remaining acidity in the oil is washed out and neutralised. Then the treated oil is put through the re-run stills where No. 1 and No. 3 specification spirits are produced.

The visitors were also shown the pumping plant which circulates the petrol into which the lead-tetra-ethyl is "educted" thus making the famous Pratt's Ethyl.

Perhaps one of the most interesting departments at Fawley is that where are made those corrugated barrels which are a familiar sight on our country roadsides when re-surfacing is being done. These are made in surprisingly few operations.



AGWI.—The refinery at Fawley, whence come Anglo-American Oils and Pratt's Petrol.

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The steel sheets are first cut to size in a guillotine and then both edges of the seam are ground to remove the scale. At the same time discs to form the ends are cut on another machine. The sheets are put through rolls which curl the sheet into barrel shape. These curled sheets are electrically spot-welded to hold them together and are passed to the electric seam-welders. The completed cylinders are next put in a special press which rolls in the necessary corrugations.

Meanwhile the ends have been dished and flanged on a press. The ends are then tapped into position in the cylinders which are rolled in another machine which spins the edges of the flanges and the cylinders together, thus completing the job.

The finished barrels after painting are filled with hot asphalt under pressure. The feature about this type of barrel is that it can be easily split away from the cold asphalt.

ALL ABOUT SHEDS.

The question of sheds for aircraft is one of paramount importance, now that so many municipalities, private firms and individuals are putting up accommodation for aircraft. The design and building of sheds is a specialist's job and is rather different from the design and building of structures for other purposes. Obviously the firm that would be in the best position to meet the call for this class of work would be the firm which builds or operates its own aircraft.

Boulton and Paul Ltd., of Norwich, are in this happy position. Their specialised form of metal construction for aircraft and the similar system which they conceived and produced for the State-built airship has made their name world-famous as aircraft constructors. They also specialise in steel structural work and buildings. They are therefore in the best possible position to foresee the needs of aircraft operators and to supply those needs.

This firm have just issued an attractive booklet, which is really well got out and set up, in which are set forth the various details and so on of the sheds which the firm can supply. Boulton and Paul are careful to point out that not only must the question of housing for the aircraft be considered, but also there are the equally important questions of workshops, offices, social accommodation, and the like.

In the printed matter, the photographs and the diagrams, suggestions are made about how individual requirements may be met. These are only intended as suggestions, and the firm are anxious to have an opportunity of getting out a special design and making quotations.

People who are going to put up accommodation in the near future both at home and abroad should write to Boulton and Paul Ltd. at Norwich and ask for this booklet. Talking of abroad, one should draw attention to the fact that the structures of the firm are specially suited for the tropics, as all of them are steel-framed, and therefore offer the greatest resistance to abnormal conditions.

Radio is perhaps, as the recent flight of *The Southern Cross* has shown, the most important adjunct to aviation, and every good Air-Park is installing the latest radio equipment. Boulton and Paul can be of service here as well, for they build steel radio towers, and these have been erected and are in use in every part of the world.

One must congratulate the compilers of the booklet on two particular points. The first of these is the schedule on page 16, where are listed all the overall dimensions of the most widely used civil aircraft. This list lets anybody see right away the sort of accommodation they will want for any combination of types. The other feature is the excellence of the photographs, and especially that of the R.101 approaching St. Paul's, a forcible reminder of the original work which Boulton and Paul Ltd. did for the Royal Airship Establishment.

FOR CHARITY.

Arrangements have been made with N.F.S. Ltd. for the visit of a party to Hanworth Air Park on July 16 under the auspices of King Edward's Hospital Fund for London. Buses will be in readiness at Victoria Embankment outside Charing Cross Underground Station at 14.30 hrs. The visitors will be received by Sq. Ldr. the Rt. Hon. F. E. Guest, P.C., D.S.O., Chairman of National Flying Services Ltd., and flying will take place all the afternoon. Application for tickets, price 10s., should be made to the Secretary, King Edward's Hospital Fund for London, 7, Walbrook, E.C.4.

NEW COMPANIES.

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MORTGAGES AND CHARGES.

CIRRUS AERO-ENGINES LTD.—First debenture dated June 27, 1930, to secure £6,000, charged on the company's undertaking and property, present and future, including uncalled capital. Holders: Branch Nominees, Ltd.

PERSONAL NOTICES.

DEATH.

FFISKE.—On July 3, 1930, following an operation, Herbert Guy ffiske, Major (Retired), R.F.A., R.A.F., of Davan Hollow, Denham, Bucks, second son of Henry ffiske, of Brundall, Norfolk.

LEACH.—Killed flying for Ontario Forestry Air Service, Major John Owen Leach, M.C., A.F.C., late 11th Middlesex Regiment and R.A.F., second son of Fred Leach, of Uplands, Victoria, B.C., formerly of Pembrokeshire, S. Wales.

MARRIAGES.

BEYNON—PEARCE-SMITH.—On June 28, at Fulham, Arnold Beynon, R.A.F., eldest son of Mr. and Mrs. Richard Beynon, of Leigh-on-Sea, and Helen Mary, elder daughter of the late William Smith and of Mrs. Pearce-Smith, Kensington.

TILLARD—BROOKE.—On July 2, at Shifnal, Flt. Lt. L. Tillard, R.A.F., elder son of Mr. and Mrs. R. P. Tillard, of Little Hayes, Colehill, Wimborne, Dorset, to Miss W. M. Brooke, second daughter of the late Major W. J. Brooke and of Mrs. Brooke, of Haughton Cottage, Shifnal, Shropshire.

FORTHCOMING MARRIAGES.

BOSTON—LINDSELL.—The engagement is announced between Flt. Lt. Frank Boston, R.A.F., eldest son of Mr. and Mrs. H. Boston, of Stanley House, Meole Brace, Shrewsbury, and Elizabeth Mary Barber Lindsell, eldest daughter of Mr. and Mrs. A. J. G. Lindsell, of Millfield, Hitchin.

DALTON-MORRIS—ELLIS.—The marriage between Flt. Lt. L. Dalton-Morris, R.A.F., and Marion, younger daughter of Mr. and Mrs. A. G. Ellis, of Bromley, Kent, will take place on Aug. 4, at Bromley.

EWENS—FIELD.—The marriage between Mr. F. G. H. Ewens, R.A.F., and Daisy Kathleen, younger daughter of Mr. T. G. Field, of Nigeria, and Mrs. T. G. Field, of Exmouth, will take place on Aug. 2, at Exmouth.

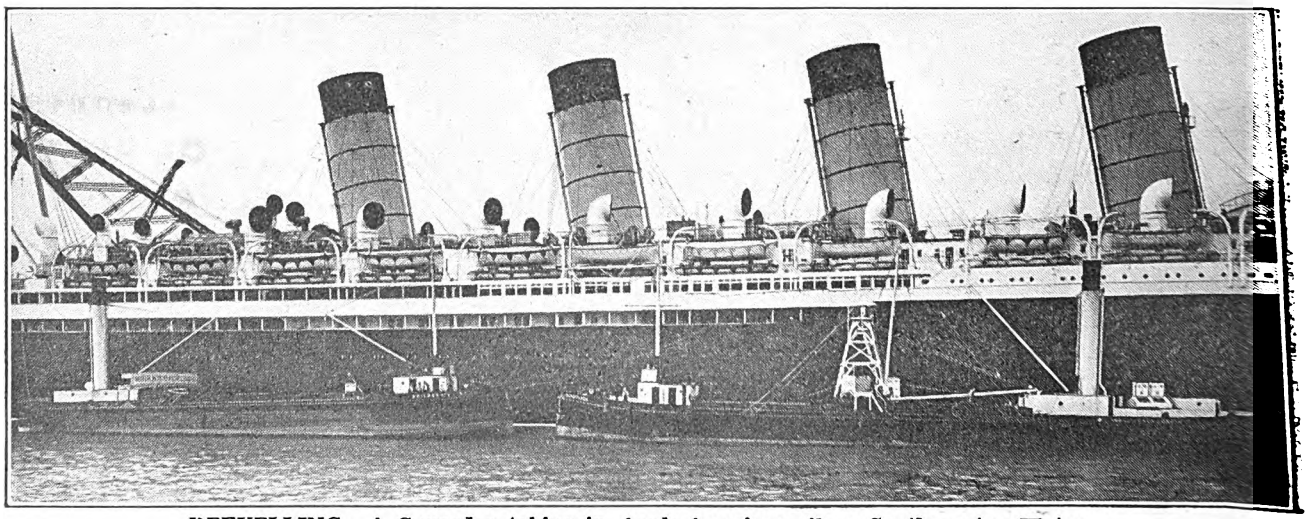
MITCHELL—FITCHETT.—A marriage will shortly take place between Flt. Lt. Alfred Barton Mitchell, R.A.F., son of the Rev. Percy J. Mitchell, B.D., rector of Ashby, Lincolnshire, and Miss Phyllis Fitchett, daughter of Mr. and Mrs. W. F. Fitchett, Carmarthen, Wales.

SUMMERS—PEACOCK.—The engagement is announced between Sq. Ldr. J. Kenneth Summers, M.C., R.A.F., son of the late J. A. Summers, of I.M. Customs, Canton, China, and of Mrs. Summers, 76, Stanhope Avenue, Finchley, N.3, and Audrey, only daughter of Mr. and Mrs. Peacock, 11, Cambridge Road, Ely.

TAIT—TAYLOR.—The engagement is announced between Norman A. Tait, Flg. Off., R.A.F., only son of the late Ronald Milwood Tait, and of Mrs. Tait, of the Willows, Saxlingham, Norfolk, and Valerie, younger daughter of Capt. and Mrs. G. H. Taylor, Andover.

BIRTH.

KIRBY.—On July 6, at "Ilsham," Minster, Thanet, to Agnes (*née* Chisholm), wife of Flt. Lt. John Kirby, R.A.F.—a son.



REFUELLING.—A Cunarder taking in Anglo-American oil on Southampton Water.

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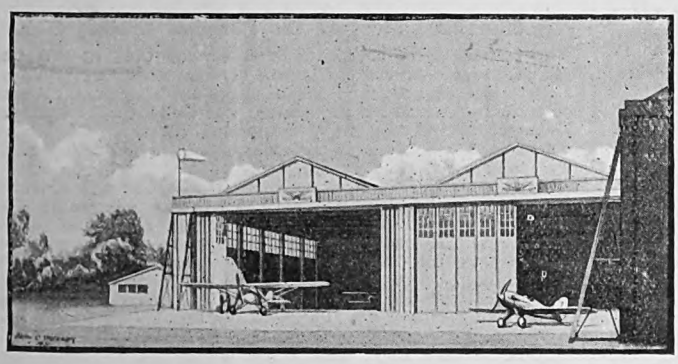

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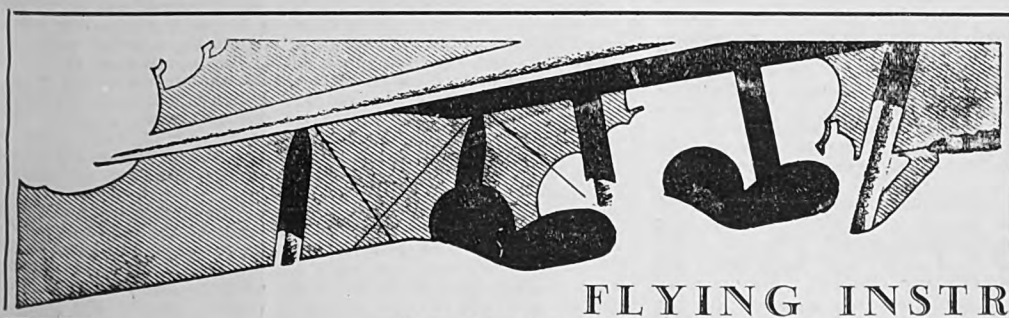

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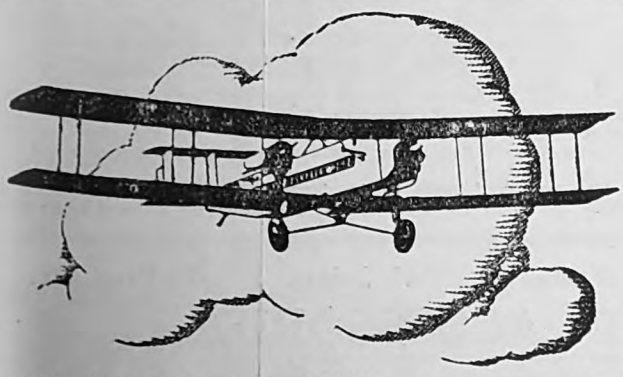

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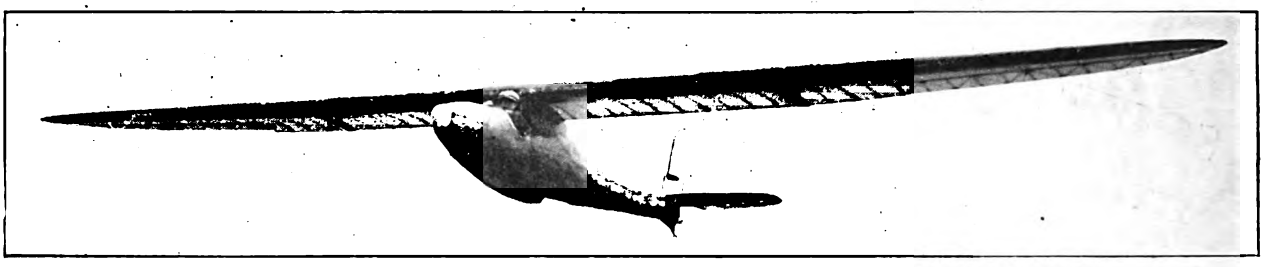

WELL AWAY.—The sailplane "Lore" which belongs to the Akaflieg of Stuttgart.

An International Body of Control for Gliders?

On June 14 at Frankfort the International Committee for the Study of Motorless Flight was formed at a meeting at which Professor Georgii was Chairman. Eight nations were represented—Belgium, France, Austria, Italy, Hungary, Holland, England and Germany.

The constitution of this Committee had been drafted at the Darmstadt Congress in March last (1930). After the constitution had been approved, an Executive Committee was elected. The President of this is Professor Georgii (Germany), Vice-Presidents, M. Massaux (Belgium), The Master of Sempill (England), M. Massenet (France). The Secretary-General, who will temporarily assume the duty of treasurer, Count Ysenburg (Germany). The treasurer is ultimately to be selected from among the Italian delegation.

The Committee has formed four Commissions to deal with the Scientific, the Technical, the Sporting and the Propagandist aspects of Motorless flight. A motion, addressed to the F.A.I., was passed by the Committee to the end that in each country the central motorless flight organisation should have its own controlling body to deal with all questions of licences and records of motorless flight.

The Longest Yet.

A gliding record of doubtful utility, and an unofficial one at that, was put up at Point Loma, Calif., on April 30, 1930, by Jack Barstow in a Bowlus sailplane. Mr. Barstow took off at 12.44 hrs. on April 29 and landed at 3.57 hrs. on April 30. The landing was made within about 1,500 feet of the point of take-off after the sailplane had been 15 hours 13 minutes in the air.

The London Gliding Club.

The London Gliding Club has two important fixtures in the near future. The first is the "Prufling" match against the Lancashire Aero Club on July 27 at Ivinghoe. There will be six members to each team and the team with the best aggregate total (no member to count more than half an hour) will win. Members of the London Club are asked to turn up in force to welcome the visitors.

The second fixture is a holiday camp. A movement is afoot to have a camp at Ivinghoe for a whole week with gliding instruction every day, weather permitting. The club is making arrangements for tents. The dates are from July 27 to Aug. 3 and members who are interested should write to Mr. G. Grice, Myosotis, Luton Road, Dunstable, who is organising it.

The Club have ordered a two-seat sailplane. One understands that members view with apprehension the job of launching this machine when loaded with two twelve-stone passengers.

The Dorset Gliding Club.

The gliding and soaring demonstration by Herr Kronfeld, for the benefit of the Dorset Gliding Club, took place in particularly favourable weather on Saturday and Sunday, July 5 and 6. The site, chosen by Herr Kronfeld himself, was Eggardon Hill, once an Early British stronghold, situated in the Dorset Heights between Dorchester and Bridport.

On Saturday, Herr Kronfeld made three flights, each of about 30 minutes' duration. At the conclusion of the third flight one wing was slightly damaged in landing, but the necessary repairs were effected overnight at the Westland Works, through the courtesy of Mr. R. A. Bruce, the managing director, who is also a keen flying member of the Dorset Club.

Herr Kronfeld, during a landing on Saturday, accidentally exterminated a rabbit. This incident should encourage the interest of Dorset farmers in gliding, and perhaps they will present a trophy to the Dorset Club, to be awarded to the member who sits down successfully on the greatest number of rabbits during the season.

On Sunday, Herr Kronfeld, in *Wien*, and Herr Magersuppe, in the *Daily Express* plane, gave convincing demonstrations to a large crowd, while Mr. H. J. Penrose, of the Dorset Club, was launched from the western extremity of Eggardon, in the Club's R.F.D. preliminary plane, and made an excellent flight of some 100 seconds over the fields below the hill.

Shortly after this a member of the Club was launched from the same point, in an attempt to gain his "A" certificate, but unfortunately a sharp gust caught him at the edge, and he made a neat left-hand diving turn into the face of the hill. Fortunately, there were no personal injuries of any consequence, although the Club's plane will need some attention.

Col. The Master of Sempill, who visited the demonstration by air, was a prominent figure with his megaphone, and did much good work to further the interests of the Dorset Club.

The First Meet of the Channel Gliding Club.

The opening Meet of the Channel Gliding Club at Folkestone on June 29 bodes well for the future of this Club. Perhaps the lack of newspaper publicity and the resulting necessity for local organisation were responsible for the efficient way in which the whole meeting was managed and the happy spirit that pervaded the whole show. This intimate spirit led people to say, even before refreshment, that they found themselves regarding the Meet as the happiest yet.

The organising was done by the Channel Gliding Club of which Flt. Lt. L. H. Stewart was hon. sec. He has now been posted to Calshot and so this job is being taken over by Flying Officer F. Read. Flt. Lt. Stewart, the Chairman, and the Committee of the Club must be congratulated on the way in which they got the whole show going. They will be the first to admit that they would "have been as nothing without charity" or more specifically, the invaluable assistance of Martin Walter Ltd. which is perhaps the best known and probably the largest motor sales and service organisation in Folkestone.

Mr. H. Spencer Apps, who is the Managing Director of the firm, told the writer that only on the Friday night before the meet did his firm decide to help the organisers. By 20.30 hrs. the same evening four hundred cards of invitation had been printed and posted. The various bills and announcements were also got ready. The prominence of the bills and banners which announced the meeting and also the lecture by Herr Kronfeld in the Town on July 1 were the most outstanding impressions of a drive through Folkestone.

Mr. Apps told the writer that during the past few weeks his firm had received three inquiries from clients who wished to buy aircraft and who offered their cars in part exchange. Martin Walter Ltd. are entering aviation as agents for the well-known makers of aircraft and expect shortly to build gliders in their big Cheriton works. By way of going right down to it, Martin Walter Ltd. had a Hermes Avian flown down by Mr. C. W. Cudemore which was available for demonstrations.

Herr Magersuppe in the Professor was the first away and put up a good show wandering up above the heads of the crowd,—but there was not enough wind, however, for him to reach any great height. Herr Magersuppe had put up a most amusing show on Saturday when, after staying up for three odd hours he made a landing on a recreation ground right in the middle of the Town. The ground is so one is told, surrounded by houses

Herr Kronfeld has been the guest of No. 25 (Fighter) Squadron at Hawkinge where people have been looking after him quite well. One gathers that the local milk supply has been strained to its limits as the visitors have been introducing this new beverage. To avoid handling, towage and so on, the *Wien* was put together on the edge of the downs close to the aerodrome and shot off. Herr Kronfeld then showed everybody how easy moving about in defiance of gravity is. When he had to leave the wind blowing up the hills he gained height in the hot air lifting off the roofs of Folkestone and that was that.

After lunch both sailpilots put up another good performance while Mr. Gordon England, who had been indefatigably present all day, exhorted the onlookers by loudspeakers to join their local gliding club.

After tea a Blackburn Bluebird landed in the field behind the hill and from it deplaned Colonel the Master of Sempill and Mademoiselle Lippens who had come over especially to see the demonstration. Colonel Sempill had flown over to the Rallye at Ostende and was on his way back.

Mademoiselle Lippens is the daughter of the Belgian Minister of Transport whose province includes aviation. She learned to fly in an

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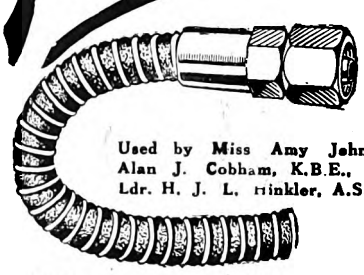

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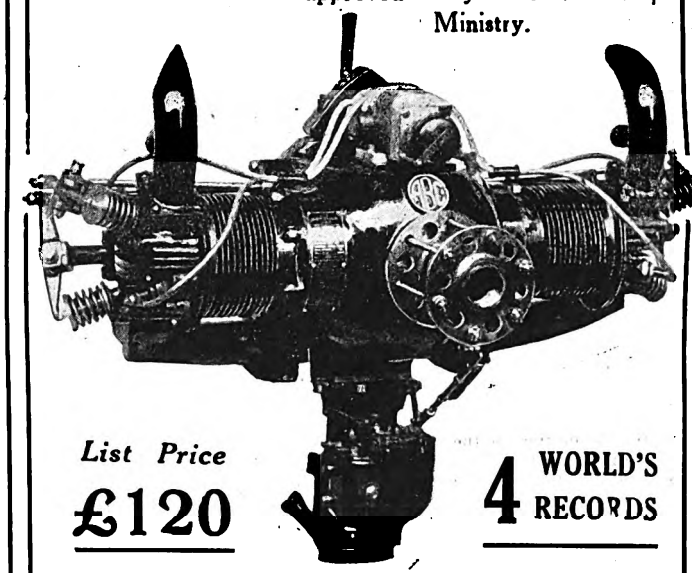

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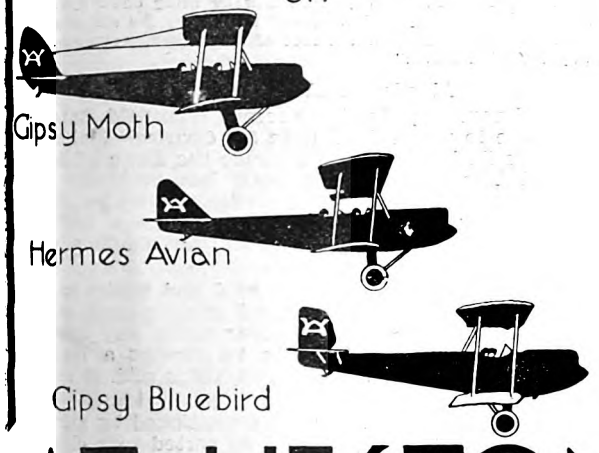

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A Resignation.

The following letter has been received:—

Sir,—Being out of sympathy with the methods of the London Gliding Club I have resigned all connection with it, and I understand Mr. Ashwell-Cooke is now acting Secretary as well as Chairman.

(Signed) L. HOWARD FLANDERS.

Lectures in Gliding.

In view of the performances in soaring flight which Herr Kronfeld is achieving in England, readers of this paper may be interested to know that the Royal Aeronautical Society still have about fifty advance proofs of the lectures read by Dr. Georgii and Herr Stamer before the Royal Aeronautical Society on Feb. 19.

The Society will be pleased to send copies of these proofs on request to any readers who may not have had an opportunity of attending the lecture or reading the paper. The charge is 6d. per copy, or 7d. postage paid. The Society's address is 7, Albemarle Street, W.1.

A New Firm of Glider Manufacturers.

A new firm has been formed to manufacture gliders and sailplanes. This is the Cloudcraft Glider Company, Rowlands Buildings, St. Mary's Road, Southampton. They will be the sole manufacturers of gliders and sailplanes to the designs of Mr. Roger S. Dickson.

This company will be pleased to design and build to B.G.A. requirements any special engineless aircraft to a customer's own ideas. The firm states that all materials used will be up to Air Ministry standards.

Herr Kronfeld's Lecture in London.

On July 7 Herr Kronfeld gave a lecture to the British Gliding Association and the London Gliding Club in the library of the Royal Aeronautical Society, by kind permission of the Council. Mr. Gordon England was in the Chair and Col. The Master of Sempill was among the listeners.

As a lecturer Herr Kronfeld is inimitable. For over an hour he talked *extempore*, and in a language foreign to him. When questions started he began again, and extended his lecture to deal with the formation of air currents.

Herr Kronfeld began by explaining that nobody need think soaring was beyond their reach. He himself only started three years ago. He made his first "hops" at Rossitten on the Baltic coast. A number of slides were then shown of the method of training. He drew attention to the fact that at Rossitten there was so little height available that the gliding angle of the normal Zogling was increased from 1 to 7 or 8, to 1 in 10 or 11, by the addition of a streamline fairing from behind the pilot to the tail.

He said that after two years as an instructor at the Rhoen he could truthfully say that gliding was much less dangerous than other sports, and that owing to the low flying speed of the Zogling, and the fact that when flying into the wind the ground speed was small, a crash though serious to the machine was not likely to hurt the pupil. He mentioned that the "O" test was made on Zoglings at Rossitten.

Herr Kronfeld laid special emphasis on the point that the great value of the gliding method of flying-training lies in the fact that from the start the pupil is his own pilot and never has to think in an emergency of what his instructor did or told him to do.

New clubs always made the same mistake, they try and go too fast. Each pupil should make from ten to fifteen hops along flat ground before going off a slope. Later a question elicited the information that pupils should always be taught to fix their eyes on a point and thus keep the nose of the machine in the wind, this prevented the machine being climbed up to a height, stalled and then blown back into the hillside, and has happened over here three or four times already. The Zogling was a very safe machine, and if mishandled would parachute down to the ground. Only a very skilled pilot could spin it.

A common fault when making turns on a Zogling or a Prufling was to put on too little bank. These machines require a lot of banking, unlike the high efficiency machines which make flat turns [to avoid losing height].

He said that the training of soaring pilots is the cheapest possible method for the selection of the best pilots [presumably for aircraft] in a country. He mentioned too that he had more sport in flying a Prufling than a sailplane.

England had the most splendid terrain for soaring and to soar as he had each Sunday recently would certainly not have been possible in Germany.

He made a point of the danger of towing sailplanes unless these had been specially strengthened. He then went on to explain the various methods of cloud soaring. One could fly under each cumulous cloud, or in them, or over them. One could take off in the warm and rising air along the front of a thunder cloud "just before the rain comes."

There has been much speculation as to the actual gliding angle of sailplanes and Herr Kronfeld's own figures are therefore of real interest. He says that the Professor type has an angle of about 1 in 18, his own *Wien* 1 in 23 and his new machine, the *Austria*, has a theoretical angle of 1 in 37 which in practive should mean 1 in 33.

This machine has a span of 100 feet and a nacelle beneath the wing for the pilot. The tail unit has a rudder at each end of the elevator. This structure is carried on an outrigger from the wing. One gathers that this machine will be used to find whether one can soar on a windless day in only the rising currents of warm air.

Somebody asked how one learned to be a sailplane pilot. Herr Kronfeld then got a blackboard and demonstrated thereon how windward and leeward eddies are formed. He showed how a rising current could be formed on the leeward side of a vertical cliff. He showed how a downward current could be reflected off the sea and become a rising current. He explained how by using one's eyes one learned to see the little signs that showed which way the air is going. In fact the old old proverb has the root of the matter, "straws show which way the wind blows."

Aberdeen and Gliding.

The interchange of jests at the recent Wakefield Banquet—the only one to which Lord (late Sir Charles) Wakefield has *not* subscribed—between His Grace the Duke of Athol and Colonel The Master of Sempill has evidently had disastrous repercussions across the Border, as may be judged by the following letter from that well-known lecturer, pioneer, demonstrator, and enthusiast, Mr. G. Tilghman Richards, who writes as follows:—

My dear C. G. G.,—My name is mud and stinks in the nostrils of Aberdeen, and so I appeal to your good offices to do something to explain that never under any circumstances would I have the temerity to attempt a leg-pull with a Scot. It all came about through this gliding movement, thus:—

After one of my lectures I was cross-questioned by a burly son of Aberdeen on the subject, and we parted very pleased with each other, he that he had found a new and inexpensive sport, and I that I had made an obvious convert. Months afterwards we met again, and I received a cold stare, the real frozen mit, and a rumble, something about dommed Southrons.

I asked what was the matter, and the conversation then went something like this:—

(R) "What is the matter now, have I offended you in some way?"

(S) "See here, laddie, did ye no tell me that a body could glide frae hill to hill, and that it was jist a matter of skill to keep up for aye?"

(R) "Yes."

(S) "Weel, I was awa to Aberdeen the next nicht, and the next day we formed the Aberdeen Gliding Club. Man, they were fair fou with the thought that they could glide and glide, frae hill to hill, and it did'na cost a bawbee. Man, ye could get a long way south with a bit o' skill, and I was the greatest hero in the toon, with sic a graund idee. Weel, that was on the Saturday, and I cam awa on the Sunday nicht, and didna go back for a few weeks, to find the club disbanded and the members looking for ma bluid."

(R) "What ever for?"

(S) "Ye dom fule, ye took guid care no to tell me that there were'na any decent hills south o' Yorkshire, and one laddie started off fra Aberdeen for London, and they lost him, and that's all your fault, ye dom fule Sassenach."

(R) "I'm really very sorry, but I don't see why his failure to glide to London for nothing should so upset you."

(S) "Do ye no? I suppose it's naething to you that Aberdeen should be the laughing stock of a lot o' dommed Tykes. And besides our club member was a decent body, but he had'na any siller in his poke, why should he? So what chance had he? He just deed o' starvation."

So you will see how important it is for you to do something to retrieve my good name, don't you?

(Signed) TILGHMAN RICHARDS.

A Gliding Club for Sydney.

Sydney University has formed its own gliding club, membership of which is divided into two sections, the first for technical people, who are known as members, and the other for non-technical people, who are associates.

An airworthiness committee has been formed under whose direct supervision come all matters relating to the design, construction, operation, and repair of machines.

This appears to be as far as the club has got, though no doubt when the Long Vacation arrives there will be a number of gliders ready.

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INCORPORATING AERONAUTICAL ENGINEERING

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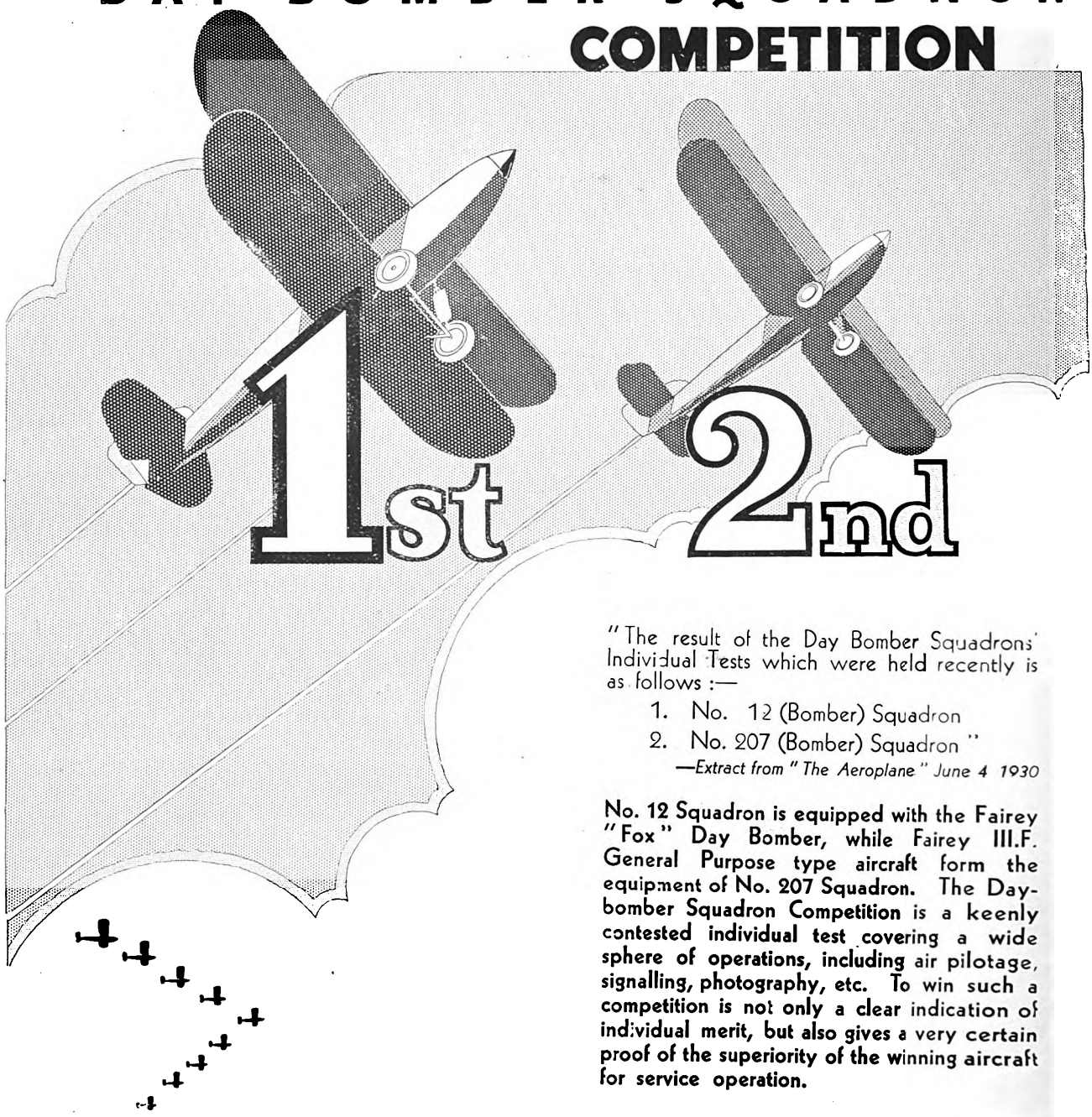

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2. No. 207 (Bomber) Squadron "

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ON THE SCHNEIDER IMBROGLIO.

On July 14 the united press of Great Britain were bidden to the Royal Aero Club to hear from Lieutenant-Colonel Mervyn O'Gorman, C.B., Chairman of the Racing Committee of the Royal Aero Club, and chief British Representative in the *Fédération Aéronautique Internationale*, an exposition of the so-called crisis which has arisen because of the rejection by our Royal Aero Club of the challenge by the Royal Aero Club of Italy to compete with us for the Schneider Trophy next year.

The whole affair is really very funny indeed, and the way in which it is being handled is typical of the countries concerned. The position is briefly this:—

Until the end of last year any national aero-club affiliated to the *Fédération Aéronautique Internationale* which wished to challenge the holder of the Schneider Trophy was at liberty to do so on depositing an entry fee equivalent to about £45 per aeroplane entered. The result was that anybody who wanted a little cheap advertisement had only to induce one or other of the many clubs affiliated to the F.A.I. (some of which are really of no account whatever) to accept his, or her, entry, and then by a little skilful working of the press all sorts of excitement could be raised about whether the machine would be ready in time, or whether it would not or whether it would catch the next boat to the scene of the contest or whether the machine would get off the water and so forth till, for the initial £45, and possibly the hire of an aeroplane so that photographs could be taken of it, the entrant might become a World-wide Notoriety.

Or, on the other hand, some quite well-meaning but incompetent person might actually produce an aeroplane at his own or somebody else's expense, with the best of intentions, and merely disappoint himself and everybody else by producing an aeroplane which refused to fly—precisely as Lieut. Alford Williams, U.S.N., did in 1927 and in 1929.

The Lesson.

The Contest of 1929 was a lesson to us and to everybody else. The preparations cost many tens of thousands of pounds and the total insurable risks must have run into well over a hundred thousand pounds. All these preparations had to be made when we had actually on our hands chal-

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"THESE TIMES STRIKE MONIED WORLDLINGS WITH DISMAY, EVEN RICH MEN, BRAVE BY NATURE, TAINT THE AIR WITH WORDS OF APPREHENSION AND DESPAIR:"

(WORDSWORTH—*Sonnets*)

CARRYING ON.—Although the present hard times resemble those so well expressed by the late Mr. Wordsworth a century or so ago, Imperial Airways still keep going despite the scarcity of rich American tourists, and others who fulfilled the second line only of the quotation. By courtesy of our friends in Germany an Armstrong Whitworth Argosy (three Jaguars) is here seen over Nuremberg with the mail for India.

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lenges from France, Italy and the United States, and everything looked like a large and exciting Contest.

Several weeks before the date fixed for the Contest the French announced that their machines would not be ready in time. Lieut. Al. Williams kept on announcing that his machine *would* be ready in time and would arrive by the last boat a day or so before the Contest. And not till that boat had actually left New York were we informed that there would be no American competitor.

A month or so before the Contest the Italians said that they were not satisfied with their machines. So they also looked like withdrawing, leaving us with all those preparations on our hands and all those financial commitments and no Contest. Ultimately the Italians in a real sporting spirit came over and put up a very good show considering all things.

As a matter of fact they might very easily have won, for two of our machines were not ready, in that their carburation installation was wrong,—and was only put right a few weeks ago, nearly a year later. And, not till quite a while after the Contest did the fact leak out that a cylinder-block in our winning machine was replaced in the 12 hours preceding the start. So that only sheer bad luck, from their point of view, prevented the Italians from winning with a two-year-old machine.

Naturally after all that we decided that we were not going to all the trouble and expense of organising another Contest unless we had some reasonable guarantee from the challengers that if they did not turn up at the start we should have something in the way of forfeit-money to cover our cost of preparation.

THE EXISTING REGULATIONS.

Consequently at the meeting of the *Fédération Aéronautique Internationale* in January last the British delegates persuaded the other nations to bring in a rule that challengers for the Schneider Trophy would have to put up a sum of 200,000 francs (approximately £1,600) for each aircraft entered,—on the condition that this sum would be returnable after the Contest to entrants whose machines arrived at the course ready to take part in the Contest.

Thus no individual or no nation would challenge unless there was serious intention of actually competing.

This new regulation was fixed as governing the Contest which is due to be held in 1931, if challengers are forthcoming. And obviously the regulations for the 1931 Contest cannot now be altered until the Contest is over.

Then comes the trouble.—In June of this year another conference of the F.A.I. was held and at that conference the Italians, with all that financial recklessness which only a country run by a dictatorship can afford, announced that if *they* held the Schneider Trophy *they* would be quite ready to accept entries at £45 a time. And they persuaded a majority of the delegates then present (something like 43 to 15) to vote in favour of an alteration of the rules. The British delegates then proceeded to argue the point for a few days and a second vote on the subject reduced the majority to 25 against 23.

Personally one is of the opinion that a chairman who knew his job would never have allowed a vote on the subject at all, seeing that the Conference of January this year closed the whole subject till after the date of the 1931 Contest.

Unfortunately the Comte de la Vaulx, who thoroughly understood the handling of international conferences, was killed some few months ago by an American aeroplane, and the present temporary chairman, though a well-meaning gentleman, evidently has not the experience necessary in handling such affairs. He was persuaded to allow a rediscussion on the grounds that a General Conference may overhaul the decisions of a Committee.

The Royal Aero Club disputes the validity of the change on the grounds that the Sporting Committee of the F.A.I. undertook a public responsibility in framing the Rules, and so became a power by itself outside of the General Conference,—just as the Stewards of the Jockey Club are a power of themselves who cannot be over-ruled or dismissed even by the Jockey Club itself till they have finished the work for which they were appointed.

Be that as it may, the Royal Aero Club of Italy sent in a challenge a few weeks ago on the condition that the rules existing in 1929 should be held to govern the 1931 Contest (with the exception that the Eliminating Trials and the Contest itself are to be held on the same day). The Italian Club also enclosed a cheque for the entry of three machines at £45 apiece,—the 1929 rate.

The Royal Aero Club therefore wrote courteously but firmly declining to accept the entry, and pointing out that, as the Royal Aero Club stands in a fiduciary position (which means in the position of trustees) in relation to the Schneider Trophy, we—that is to say the R.Ae.C.—cannot accept the entry even if we would like to do so, because the rules for 1931, as fixed in January 1930, cannot be altered by anybody. With this letter the Italian cheque was returned.

A VERY PROPER ATTITUDE.

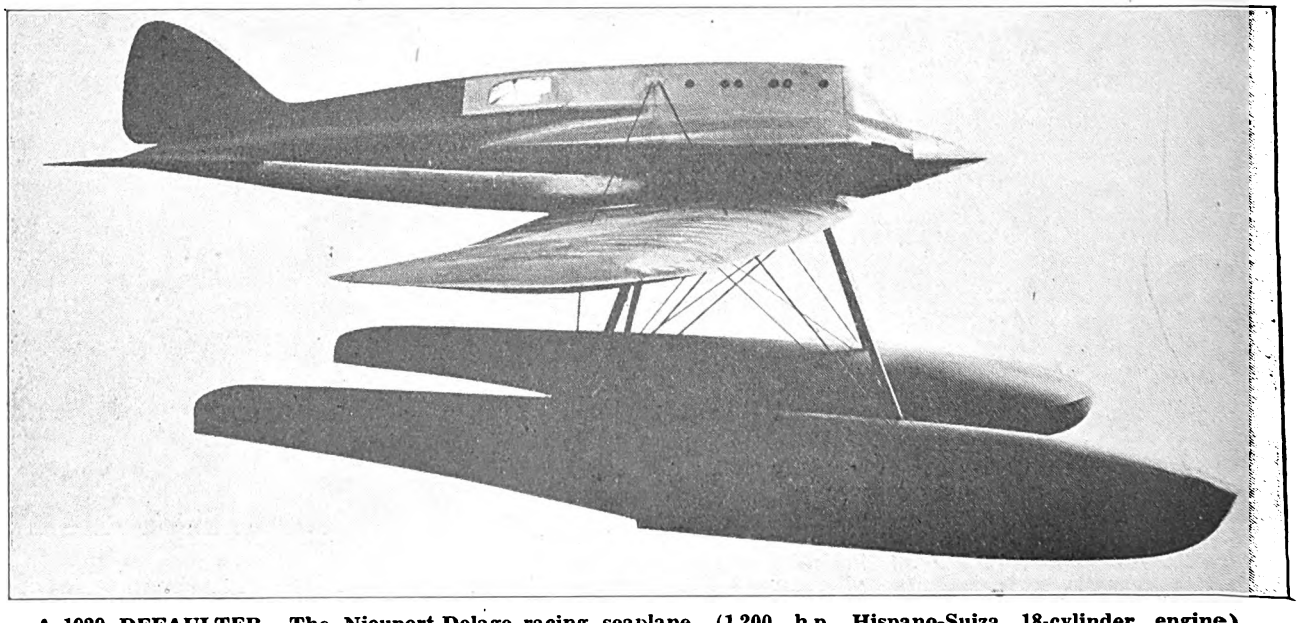
Everybody must agree with the attitude of the R.Ae.C. If we admitted this alteration of the rules in 1930 there would be nothing to prevent the General Conference of the F.A.I. from altering the rules again in January 1931 and, if they liked, altering them again in June 1931, a few weeks before the Contest.

Consequently the position which the R.Ae.C. has taken up is eminently correct and quite unassailable. But we certainly are fortunate in that our unimpeachable attitude coincides so perfectly with our financial interests.

The whole History of England is built on the curious coincidence of our financial interests with our moral rectitude. On the other hand, the Italian entry is typical of the kind of try-on which the Mediterranean peoples always endeavour to put across when dealing with the Nordic peoples. And that is about all that there is to be said about it.

If Italy likes to send in a legal entry with a cheque for £1,600 per machine then the R.Ae.C. will accept it. And, of course, the raising of such a sum would be of no account to the Italian Government, which would only have to exile a few anti-Fascists (if any can now be found) and confiscate their belongings in order to cover the cheque.

Consequently, there is still hope of a Schneider Contest in 1931,—always providing, of course, that we in this country can raise a competing machine. The current rumour is that the Air Ministry is prepared to lend the existing Gloster Napier VI and/or the Supermarine Rolls-Royce S.6, provided that the machines are insured for £20,000 apiece. That is obviously absurd, because the intrinsic value of each aero-



A 1929 DEFAULTER.—The Nieuport-Delage racing seaplane (1,200 h.p. Hispano-Suiza 18-cylinder engine) which was built to compete in the 1929 Schneider Trophy Contest, but was not ready in time.

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Confidence!

"FIVE Southampton twin-engined *flying boats* flew over from Calshot and it was not overlooked that the long *overland journey to Hendon and back implied CONFIDENCE IN ENGINES.*"

Daily Telegraph
30th June, 1930

The engines fitted to these machines were the tried and proved

NAPIER

The finest aero engine in the World

D. NAPIER & SON LTD.
ACTON, LONDON, W.3

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plane cannot possibly be more than a couple of thousand pounds.

The tens of thousands of pounds which were spent on producing these machines were spent on acquiring knowledge. And that knowledge would still exist even if both the Glosters and both the Supermarines were at the bottom of the sea. New machines and new engines could perfectly well be built to the existing designs, if all experimental charges and overhead charges were washed out, for a matter of at most £2,000 apiece for material and labour, and that is the utmost for which the Royal Aero Club should be asked by the Air Ministry to insure the machines.

Apart from that, these machines cannot possibly be used for anything other than going for records (which is the same thing as experimental speed flying) or for the Schneider Contest, and are, therefore, useless unless so used. Consequently the Air Ministry ought to be quite willing to lend them for nothing to Lord Wakefield or whomever else is going to finance the Royal Aero Club's defence of the Schneider Trophy next year. Why! Lord Wakefield's Income Tax alone would recompense the Treasury if all four machines were crashed in the Contest.—C. G. G.

THE ROYAL GEOGRAPHICAL SOCIETY.

Speaking at the annual dinner of the Royal Geographical Society on June 23 Lord Thomson, Secretary of State for Air, discussing the project for linking this country with Canada by an air route by way of Northern Greenland, said that when that scheme was put before him some time ago by a number of enterprising young men he was able to give encouragement to the enterprise, but, alas! he was unable to produce any funds. He was glad to learn that the Society, which had no doubt more funds available than the Chancellor of the Exchequer, had made a contribution towards the project. The possibility of reaching Canada in two and a half days from England would be a great step forward.

Speaking of the uses of aerial navigation to survey work, Lord Thomson said he expected that the air survey of Northern Rhodesia, covering 90,000 square miles, would be completed and the results published within two years, a fact which ought to convert the doubting Thomases to the value of that form of survey.

The airship was going to be of great help to geographical survey, because the surveyors would have the opportunity of working from a stationary vessel, with every conceivable instrument at their disposal, and would be able to hover almost indefinitely over the territory being explored.

The Chairman, Col. Sir Charles Close, in reply, said that many of the explorations of the world were now being done by air. The Greenland exploration to find out the shortest way to Canada would be under the supervision of Mr. H. G. Watkins, one of the best known of the young explorers.

THE IMPERIAL PRESS CONFERENCE.

In the course of a speech at the Imperial Press Conference at Grosvenor House, Park Lane, on June 27, Lord Thomson, Secretary of State for Air, said that this country might claim, without undue national pride, that the British Air Force was by far the most complete in its ground organisation, which was the basis of effective work.

Apart from efficiency it was essential that we should have air routes of the most complete and up-to-date description linking this country with all parts of the Empire. If he were not filled with hope that Civil Aviation could be put on a commercial footing he would not stand for the payment of subsidies. He could not see flying across the Atlantic from east to west in an aeroplane as a commercial proposition. But another route was being studied which went by the Faroe Islands and the ice-cap of Greenland and Northern Canada to Churchill, Montreal and Chicago. He believed that the investigations of the ice cap in Greenland would result in something practical in 18 months or two years.

Airship navigation was going to be essentially international. He foresaw the time when there would be forests of masts belonging to private firms to which airships would go as now a yacht went to a buoy. He did not believe that aeroplanes would solve the Empire problems.

AND WHY NOT?

The following letter has been received from a distinguished archæologist, who evidently went to investigate Hadrian's Wall:—

Sir,—Why is there no proper landing-ground, much less an aerodrome, anywhere near Carlisle? One supposes that what is everyone's business is nobody's business in this laissez-faire and don't care country. Of three possible landing-grounds, one was full of sheep and cattle, and had a large earthwork across it. The other wasn't much better. Neither was labelled. Finally we chose a field near Longtown, but the owner was naturally not as enthusiastic as the rest of the population, who apparently don't often see aeroplanes up there—and no wonder.

The Carlisle district is a strategic point of great potential importance in aviation. It lies between hill-regions on three sides and the sea on the fourth, on the direct western route to Scotland. It has been of importance from Roman times on account of its position, and it will retain it now if aviation supersedes other transport.

Are the Carlisle City Fathers doing anything to lay out a municipal aerodrome like Ipswich, and if not why not?

Your infuriated and constant reader, (Signed) O. G. S.

[Actually Carlisle is logged at the Air Ministry as having bought land for an aerodrome. But one gathers that in Carlisle all the liquor trade is not only under municipal control, but is actually run by the Municipality or the State. The assumption seems to be that therefore the liquor is so bad that aviators, who are notoriously a liquor-loving class and connoisseurs, are not likely to want to land at Carlisle, and so there is no good in going to the expense of providing an aerodrome.—C. G. G.]

IN THE CHANNEL ISLANDS.—The baptismal ceremony of a Cutty Sark amphibian (two Cirrus-Hermes engines) by Major-Gen. E. H. Willis, C.B., C.M.G., Governor of Jersey, on the beach. This machine belongs to Kirsten and Mace Ltd., which company intend to operate a service between Jersey and Southampton and are doing passenger flights round the Channel Islands.

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CIRRUS MARK III AVIAN

WINS THE KING'S CUP

and the Siddeley Trophy

at an average speed 102.7 m.p.h.

Piloted by Miss Winifred Brown.

Miss Winifred Brown said:

"I had a CIRRUS engine. Its performance was wonderful. I opened it full out when I took off and ran full out the whole 750 miles.

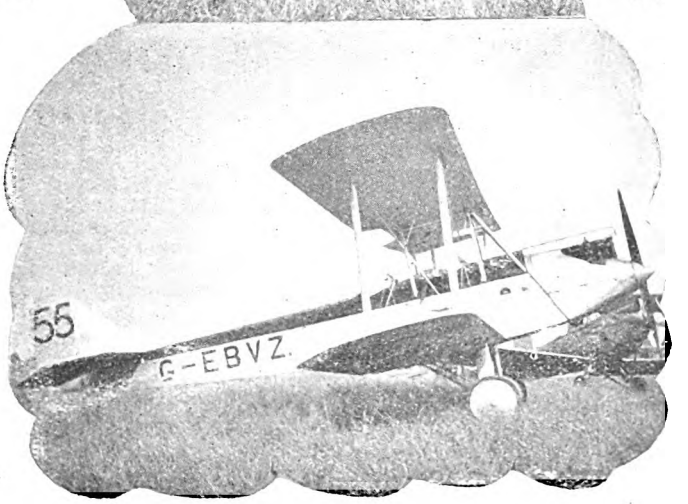
Not once was it necessary to make any adjustment of a single part. The engine was running just as perfectly at the end as at the moment of starting.

I attribute my success to the efficiency of the engine"

CIRRUS and HERMES engines successfully completed the course in many different types of aircraft. Amongst the first twenty-five machines to complete the course of 750 miles were:

2 CIRRUS AVIANS
1 HERMES BLUEBIRD
1 HERMES DESOUTTER
1 HERMES ELF
1 HERMES HENDY 302
3 CIRRUS MOTHS
1 HERMES SPARTAN
1 HERMES WIDGEON

KING'S CUP
1926
1927
1930



Siddeley Trophy
1928
1929
1930

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ABOUT THE KING'S CUP RACE.

The following letter deserves attention:—

Sir,—Your criticisms of the organisation of the King's Cup Race are amusing, and in some respects instructive, but as usual, they do injustice to quite a number of people.

Your suggestion that the errors in restarting the machines may have affected the result of the race is distinctly unfair to Miss Brown, who was over twelve minutes ahead of the second finisher and nearly a quarter of an hour ahead of the third. Whatever mistakes may have been made and left uncorrected (if any) certainly did not amount to anything as serious as this, and your criticism in this respect is hardly fair to a genuinely fine performance.

Your criticism of voluntary workers, though sound in theory, is not borne out in fact on this occasion. The experts (that is to say the paid time-keepers and starters) were as much overwhelmed by an impossible task as any of the voluntary workers.

The efforts of the Bristol Club members, the Liverpool Club members at Hooton, the Lancashire Club members at Barton and Woodford, the Yorkshire Club members at Sherburn, and the Leicester Club members at Desford for example were given quite voluntarily and without any hope of reward either for themselves or for their respective Clubs. To dismiss these efforts with no more than a contemptuous reference to the inefficiency of voluntary workers is hardly fair play.

Your suggestions for the future running of the race without controls had of course already been considered before the race, but it must be remembered that one object of the race is to develop the spirit of air-mindedness in this country. Well over fifty thousand people watched the race at the various controls, but nothing like this number would watch the race in future if the control system were abandoned.

It may be perfectly true that in order to cope satisfactorily with the organisation a very much larger number of paid and experienced officials should have been employed. This would have meant a very much increased expenditure, the cost of which would fall upon The Royal Aero Club.

The position is that The King's Cup Race, instead of being merely a sporting event, has now become a potential advertisement worth many thousand pounds to the manufacturers. The Aerial Derby is really the manufacturers' race, but all attempts to get the Trade to revive this race have so far failed, from lack of support from the Trade. They seem to prefer to allow the Royal Aero Club to incur all the trouble and expense of organising the King's Cup Race for their benefit.

No doubt flying will in time become entirely commercialised and the sporting element which at present forms one of its chief attractions to the majority of those engaged in it will completely disappear. Your attacks upon voluntary workers in general and the Royal Aero Club in particular may even hurry up the process.

Sooner or later no doubt the King's Cup Race will be run on strictly business lines and every pilot who infringes a rule by the fraction of an inch will be promptly disqualified. These horrible amateurs will be entirely eliminated and the race will become a business contest for the advertisement value with nothing sporting about it except the risking of the pilots' lives. Won't that be splendid?

(Signed) Alan Goodfellow.

The Answer.

What one said was that 75% of voluntary workers were inefficient or incompetent,—and one sticks to the statement, as the result of some 35 years' experience of amateur sport. If any reader feels aggrieved he is welcome to count himself among the 25% who are efficient and competent.

One fails to see any slight on Miss Brown in one's statement. If some of the others had gone faster she would not have won. Which seems undeniable. And nobody grudges her the good luck which came her way, or denies her ability as a pilot and course-keeper.

So far as the people who watched the race at the Controls are concerned,—few of those who went to the aerodromes at Newcastle or Hull are likely to want to see such an exhibition of chaos again. And the Clubs which volunteered to organise the Controls distinctly did so with the idea of making a profit out of the gate-money.

Forcing competitors to alight and stop for forty minutes whether they want to do so or not is of no particular use in improving the breed of British aircraft,—rather the other way in fact. By all means have one compulsory landing, with a limited landing area (as suggested last week) to eliminate the machines which land too fast or too far. But otherwise make it a go-as-you-please race. That would be far better for the breed than merely trying to provide a show for the sake of the gate-money. There are plenty of better ways of increasing air-mindedness.

Furthermore, a race without these compulsory landings would be far more of a true amateur sporting event than one in which competitors have to land and taxi round for the entertainment of a pay-at-the-gate mob.

Apart from that, one is all in favour of enforcing rules rigorously. Our sloppy methods in sport as well as in business account for our being so constantly beaten by other nations who organise properly, train seriously, and take every advantage of every fraction of an inch.

Amateurs are all very well so long as they are amateurs in the strict sense of the word,—lovers of the game who devote themselves body and soul to it, whether as competitors or as volunteer workers. But we have too many people who compete because they want to see themselves in the papers or volunteer to help because they want to run about with an armlet and look important. The honest professional who has to do his job or starve is, on the whole, preferable.

So next year let us cut down the number of competitors by insisting on faster machines, let us eliminate the unsafe by having only one control, let us run that control properly, and so let us improve the breed of British aeroplanes, as His Majesty intended when he presented the Cup.—C. G. G.

THE MANCHESTER CONTROL.

A Manchester reader writes:—

May I state that we *did* have posts at the extreme sides of the aerodrome in a line with the finishing arrows, so that the public could tell where the arrows were; that at one time we had fifty-one machines on the ground and the majority of pilots will tell you there was comparatively little confusion; that the finishing line was placed at one side of the aerodrome near the public and the starting line at the other,—starting machines did not cross the finish.

The names of pilots were announced by loud speakers to the crowd and incidentally the public knew far more about the positions in the race than some of the harassed officials. There were plenty of lavatories for the public. The petrol filling (parking) was beside the main enclosures. H.M.V. gramophone records from the June and July lists were broadcast. [Which accounts for the opinion expressed by many pilots to the effect that the controls at Bristol and Barton were very well run.—C. G. G.]

As for Barton on normal days:—The Duke of Gloucester landed, piloted by Sq. Ldr. Don, on Tuesday. The Duke complimented Alderman Davy on the excellent Airport, and Mr. Holmes and Mr. Leeming on the shed and workshop arrangements.

There are now five privately owned machines kept at Barton: four Moths and Mr. Eckersley's (Chairman of the Lancashire Aero Club) Avian.

Mr. Low, a pupil of Northern Air Lines, who recently qualified for his "A" licence, flew solo to Geneva on Thursday and returned on Monday. He left Geneva at 10 a.m. and landed at Barton (with the aid of flares) at 10.35 p.m. As Mr. Low has done only about twenty hours' solo this is a very creditable performance.

The Air Taxis have been kept quite busy, and trips were made during the week to Hartlepool, Middlesbrough, Castleford, Leeds, Southport, and Cardiff. The landing of the "Air Liner" still causes considerable public interest and there is always a crowd present to watch it land.

VAPOURINGS.

Wicked folk in sacrilegious aircraft have been desecrating London's sky. This was noted by a pained citizen through the rifts in that habitual pall of smoke and cloud which ofttimes makes one wonder whether London has a sky, and if so why the L.C.C. don't keep their property cleaner. They are going to look into it, however. Mr. A. McDonald Gordon, chairman of the Local Government Committee of the L.C.C., has promised the pained citizen, Mr. A. Emil Davies, that he will bring before his Committee the question of smoke advertising.

Mr. Davies has seen, on occasions when the empyrean was visible to other than aviating Londoners, a trespassing speck flying too high to be heard, much less identified, and leaving long wisps of white vapour behind it across the spotless blue.

Mr. Davies wants it stopped, perhaps on the ground that the portentous sky-writings of the elements cause plenty of obstruction without the puny competition of creeping things (with apologies to Mr. Sidney St. Barbe and others) when the weather clears. Another very natural objection is the frequency with which the impudent smoke rings form words of alcoholic import. Association makes the onlooker thirsty whatever the word turns out to be.

Sky-writing is in no sense very important. It is not very useful, but it is rarely audible and never so darkens the sky that it need be seen without scrutiny. The only good reason for stopping it seems to be the salutary exercise of authority. The tide comes in and out without regard to local governments, but one can always make it hot for small boys who build castles in the sand, provided one gets satisfaction thereby.—F. D. B.

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AIRCRAFT FOR FILM PRODUCTION.

In the House of Commons on July 9 in reply to Mr. Young, the Under-Secretary of State for Air said that no aircraft had been loaned by the Air Ministry to British Instructional Films Ltd. The transaction had been one between the film company in question and a firm of aircraft constructors who had come to an arrangement whereby two aeroplanes which were under order for the Air Ministry and were being tested before delivery had been used for the purpose of having certain pictures taken in the air. The Air Ministry was concerned in the matter only in so far as it stipulated, in agreeing to the arrangement, that it should not be charged with the cost of the flights made for that particular purpose. What charge was actually to be made against the film company was a matter for arrangement between the company and the firm and he had no official information in regard to the amount.

A DESERVED DISTINCTION.

On June 9 Mr. Glenn Hammond Curtiss, the great pioneer of American Aviation, was invested with the degree of Doctor of Science at the University of Miami, at the Commencement Celebrations of that University. This disproves that a prophet is without honour in his own country, for Mr. Curtiss has during the past ten years identified himself with Miami and has done much to help the development of that newly-famous seaside resort.

In conferring the degree, Dr. Bowman Foster Ashe, President of the University, said:—

In bestowing the honorary degree on you, Mr. Curtiss, the University is not attempting to honour you but is merely recognising the things you have accomplished.

The investiture was likened by one speaker to a ceremony which had lately taken place in Washington when President Hoover conferred long overdue honours on Commander John H. Towers, U.S.N., who organised and commanded the expedition of Curtiss N.C. flying-boats in 1919, one of which, the N.C.4, was the first vehicle to cross the Atlantic by air. On that occasion President Hoover apologised in the name of the Nation for the delay in honouring Commander Towers,—who will be well remembered in this country as a valued Ally long before America officially entered the War in 1917.

In presenting Mr. Curtiss, before a brilliant assembly of about 1,000 persons, Dr. Sieplein thus concisely enumerated the inventor-aviator's achievements:—

Your name has twice been linked with that of Langley, who blazed the way for aviation: once, when you flew the Langley Aerodrome which had been pronounced unflyable, and again when you were awarded the Langley medal by the Smithsonian Institution.

President Ashe, I deem it a great honour to present Glenn Hammond Curtiss to you for the honorary degree of Doctor of Science, using the words of Dr. Albert F. Zahm of the Guggenheim Chair of Aeronautics: "He has done more to develop the science and art of Aviation than any other individual."

The University of Miami appears to have a University Air Squadron, for the report of this ceremony states also that Ensign Frederick H. Given, head of the Department of Aviation of the University of Miami, is also Commander of the Naval Reserve Aviation Division VN-8RD7, and students enrolling in this Reserve unit receive their flight training with Government officers. On completion of their secondary training they are entitled to commissions as ensigns and may be detailed for service at a Naval station or with the Fleet. During the eighteen months that the University Aviation Department has existed under the direction of Ensign Given, 150 men have completed the course and many are now in one or other of the more than forty branches of work that aviation training opens up.

THE GRAF ZEPPELIN'S VISIT TO SCOTLAND.

Residents and holiday-makers on the East coast of Scotland were given a good sight of the *Graf Zeppelin* on July 11. The airship flew over the Faroe and Orkney Islands in the course of a 48-hour cruise and at about 11.00 hrs. came very low over Aberdeen. She was also observed to advantage off Dundee and over Edinburgh, where she circled at a height of 700 to 800 ft.

Later she visited Hull, where some fourteen years ago nocturnal visits of the same species were common and were regarded as being less entertaining sights.

THE WEATHER MAP.

[*The Weather Map* (Second Edition) issued by the Meteorological Office, Air Ministry; 37 figures and frontispiece; obtainable from THE AEROPLANE Book Dept., Cannon House, Pilgrim Street, E.C.4. 3s. 3d. post free.]

The weather map or meteorological chart has become a commonplace adjunct to everyday existence and many are published regularly in the Daily Press. But in spite of this there are many people to whom isobars and millibars are a closed mystery. Such people, and those interested in aviation in particular, will welcome the issue by the Meteorological Office of the Air Ministry of *The Weather Map* which is an introduction to modern meteorology. Mr. J. S. Dines, who is Superintendent of the Forecast Division of the Meteorological Office, is to be congratulated on the successful way in which he has rewritten the first edition of *The Weather Map*. The book is readable and can be readily understood by anyone who is keen to master the rudiments of the subject.

The book is divided into eight chapters, which start with the history of the weather map and finish with the British Forecast Districts and Some Forecasts. The intermediate chapters deal with the observations of wind and pressure; the relation of wind to pressure; the observations of temperature and weather; and two chapters are devoted to the various kinds of weather associated with pressure systems.

The earliest known weather map was published by Edmund Halley in 1688 and this showed the general trend of trade winds and monsoons from about 30°N.Lat. to 30°S.Lat. The first readings to be published in map form appeared in *The Daily News*, June 14, 1849. This was done with the co-operation of James Glaisher, F.R.S., of the Royal Observatory at Greenwich, and the Electric Telegraph Company.

The inclusion of photographs of characteristic types of clouds would have made the International Definitions and Descriptions of Cloud Forms much easier to understand. Cloud shapes are so complex that a picture would probably give people a much better idea than they could obtain from a generalised description.

No doubt the revival of interest in gliding and the close connection between that sport and the weather will greatly increase the demand for this instructive book.—T. J.

AN OLD FRIEND IN A NEW GUISE.

—In the middle is shown Dr. Glenn Hammond Curtiss being presented with the Diploma and invested with the hood of Doctor of Science of the University of Miami, Florida. On the left is Doctor B. F. Ashe, President of the University of Miami, and on the right is Doctor O. J. Sieplein.

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THE CHALLENGE DE TOURISME INTERNATIONAL.

The second annual International Competition for Touring Aircraft known as the Challenge de Tourisme International will take place between July 20 and Aug. 7.

By virtue of a German victory last year this year's contest has been organised by the *Aero-Club von Deutschland* and will start and finish at Berlin.

The Challenge Trophy, valued at 20,000 francs, is a presentation from the *Aéro Club de France* and this is competed for by the various national aero clubs represented by the competing pilots. The trophy will be held by the Club whose member wins it and the holding Club will be responsible for the drawing up of the rules and the organisation of the ensuing contest.

Entry for the competition entails the payment into the competition funds of a sum proportional to the number of votes allotted by the *Fédération Aéronautique Internationale* to the national club entering. The competition fund provides for expenses incurred in connection with the general organisation and for the creation of a number of international prizes.

For the 1930 contest the following national aero clubs are taking part: the Aero-Club von Deutschland (Germany); the Royal Aero Club (Great Britain); the Aéro Club de France (France); the Federacion Aeronautica Española (Spain); the Aeroklub Rzeczypospolitej Polskiej (Poland); the Schweizer Aero Club (Switzerland); and the Aeroklub Republiky Ceskoslovenske (Czechoslovakia).

Competing aircraft are expecting to be arriving in England on Monday, Tuesday and Wednesday of next week and everyone who is interested in modern light aeroplane design, is advised to go either to Whitchurch aerodrome, Bristol, or to Heston, on those days.

The following countries will be represented in the contest by a total of 97 competitors which will be divided as follows: Germany—47 competitors, Great Britain—7 competitors, France—16 competitors, Poland—14 competitors, Switzerland—4 competitors, and Spain—9 competitors.

Incidentally, aircraft manufacturers would be well advised to give leave to their drawing office staffs to enable them to visit the Bristol or Heston aerodromes on the days when the competing aeroplanes are passing through England. There is nothing more educative and refreshing to individuals working on one particular aircraft design than to be able to see how other people do things. If nothing else is learned these others very often demonstrate how things should *not* be done.

The controls will be open from 07.00 hrs. to 20.00 hrs. each day although on Sunday night Bristol will be open until 20.30 hrs. to allow half an hour's grace to any competitor who is compelled to leave Berlin 30 minutes or more after the official starting time of 09.00 hrs.

Possibly a few of the faster competitors may cover the 860 odd miles between Berlin and Bristol on the first day.

THE COMPETITORS.

The competition is open to two categories of light aeroplanes. Category I is for aircraft weighing between 322 kgs. (715 lbs.) and 460 kgs. (1,014 lbs.), and Category II for aircraft weighing less than 322 kgs. (715 lbs.).

Each aeroplane must have a certificate of airworthiness granted by a competent authority of a country adherent to the F.A.I. and taking part in the competition.

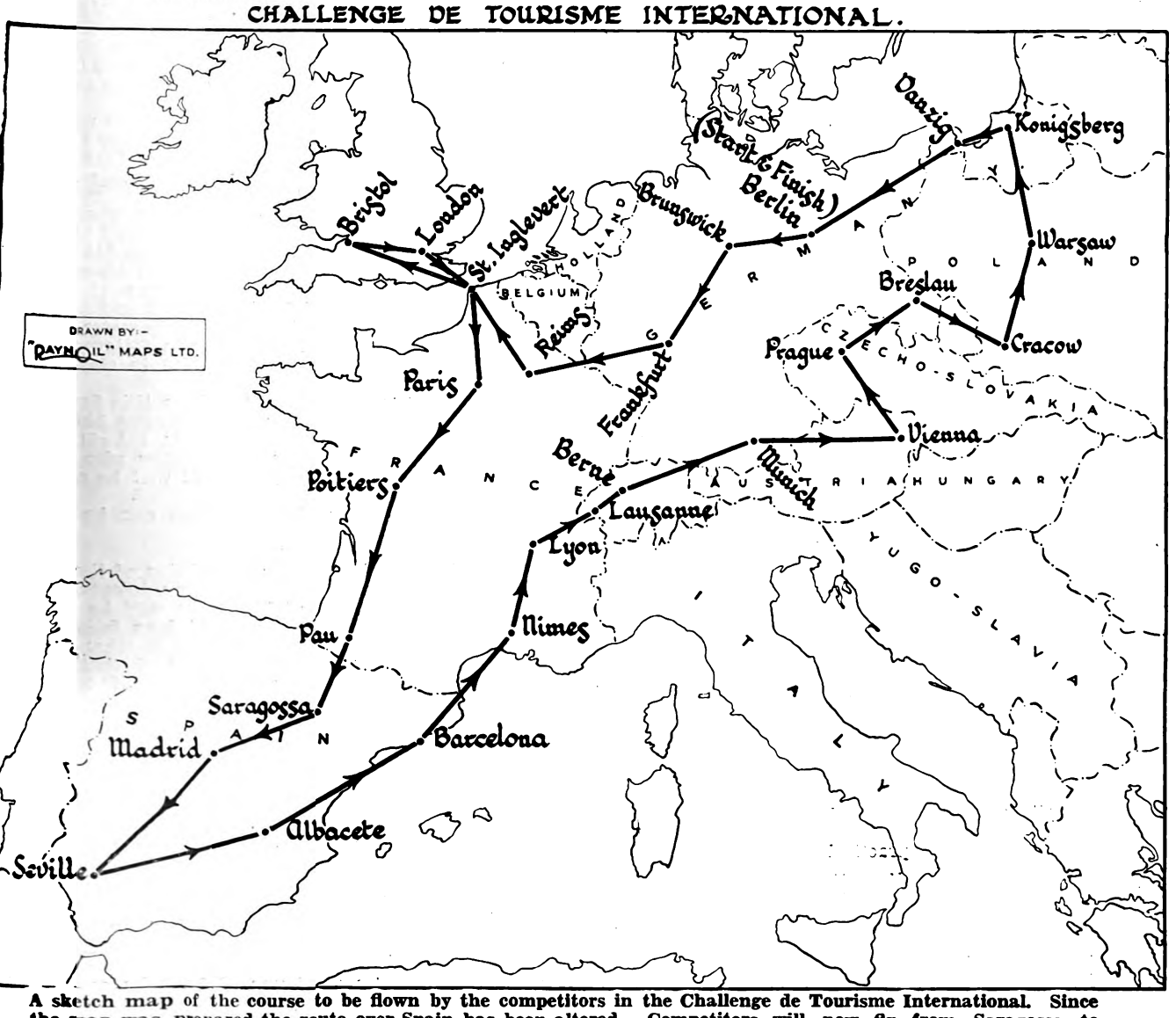
Competing aeroplanes must also have flown a certified minimum distance of 200 kms. (124 miles) before the beginning of the competition and must be provided with a fireproof bulkhead and fire extinguisher, and must also carry an air-speed indicator, revolution-counter, altimeter, compass and watch.

Every competitor must possess an insurance policy covering all risks of civil liability in the event of an accident involving a third party.

Pilots must hold a private pilot's licence or a public transport pilot's licence and the sports licence of the F.A.I. for the year 1930.

The names of the pilots and passengers must have been

CHALLENGE DE TOURISME INTERNATIONAL.



A sketch map of the course to be flown by the competitors in the Challenge de Tourisme International. Since the map was prepared the route over Spain has been altered. Competitors will now fly from Saragossa to Madrid and Seville and back to Saragossa over the same route and thence to Barcelona.

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communicated to the Sports Commissioners before a fixed date and a change of pilot is not allowed throughout the competition. Two seats in the aeroplane must be occupied throughout the competition, but a change of passenger is allowed. It is not permitted to replace passengers by ballast. The minimum age for passengers is 18.

THE COURSE.

The competition this year will consist of a circuit of Europe covering approximately 7,500 kms. with 27 compulsory stops, after which an examination of the technical qualities of the aircraft will take place in Berlin.

The route to be followed will be as follows:

	kms.		kms.
Berlin (Tempelhof)—Brunswick	201	Madrid—Alcaniz	304
Brunswick — Frankfurt-on-Main	273	Alcaniz — Barcelona (Prat)	194
Frankfurt - on - Main —Reims (Military aerodrome)	344	Barcelona — Nimes	343.5
Reims—St. Inglevert	240	Nimes—Lyon (Bron)	213.5
St. Inglevert—Bristol (Whitchurch)	309	Lyon — Lausanne	160
Bristol—London (Heston)	152.5	Lausanne — Berne (Belp)	77.5
London—St. Inglevert	164	Berne — Munich (Oberwiesenfeld)	335
St. Inglevert — Paris (Orly)	245	Munich — Vienna (Aspern)	367
Paris—Poitiers	286	Vienna — Prague (Kbely)	255
Poitiers—Pau	363.5	Prague—Breslau	206
Pau—Saragossa	182	Breslau—Posen	145.5
Saragossa — Madrid (Getafe)	286	Posen—Warsaw	286
Madrid—Seville	382	Warsaw — Konigsberg	281
Seville — Madrid (Getafe)	382	Konigsberg — Dantzig	134
		Dantzig — Berlin (Tempelhof)	410
			7,522 (4,680 miles).

[NOTE.—There is a possibility that flying over Alcaniz aerodrome (Spain) may be prohibited. For this reason Saragossa may be selected as an obligatory stop between Madrid and Barcelona. By this change the total length of the circuit will be slightly increased. The definite course between Madrid and Barcelona will be published in the official guide.]

THE TOUR.

The circuit will start from the Tempelhof aerodrome at 09.00 hrs. on July 20 and the "examination of the practical qualities" will only be open to those aeroplanes which have fulfilled the conditions of the European circuit and have arrived back at the Tempelhof aerodrome by 16.00 hrs. on July 31.

Aircraft entered for the competition must arrive at the *Staaken* aerodrome, Berlin, in flying condition by noon on July 18, but the Sports Commissioners will be present at this aerodrome from 09.00 hrs. on July 16, and aircraft may arrive from this time onwards.

At this aerodrome the preliminary weighing and sealing will be done after which aircraft will proceed by air to the *Tempelhof* aerodrome on July 19 in readiness for the circuit of Europe.

After completing the circuit, aeroplanes will land at the *Tempelhof* aerodrome whence they will proceed again to the *Staaken* aerodrome, as far as possible immediately after arrival.

Throughout the entire competition, competitors will not be allowed to change the following components:—Wings, ailerons, fixed tail surfaces, elevators, rudder, fuselage, airscrew, undercarriage (except wheels), cylinders and engine crank-case. Change of these parts which will be marked at the beginning of the competition will entail the disqualification of the offending competitor.

In case of necessity a change of airscrew will be permitted, so long as another airscrew of the same type and dimensions, and marked in the same manner as the airscrew used at the start, is carried in the aircraft throughout the competition. The engine will be sealed and the breakage of these seals will penalise the competitor by 30 marks.

Final classification will be determined by the award of marks which will be allocated as follows:—

	Marks.
1. Regularity over the Circuit of Europe	75
2. Average speed over the Circuit	195
3. Examination of the practical qualities of the aircraft	140
4. Take-off and landing	60
5. Fuel consumption	30
Total	500

The Trophy will be awarded to the National Aero Club which has entered the aeroplane that shall have obtained first place in the general classification provided that the competitor gains a total of not less than 300 marks.

In the event of a tie the competitor who scores the highest number of marks in the take-off and landing test will be placed first. If the result is still a tie preference will be given to the competitor classed first in the fuel consumption test.

REGULATIONS.

With regard to the regulations governing the Circuit of Europe every competitor must, in principle, spend each night at one of the obligatory landing places, but there is little restriction about how many stages a competitor may cover in one day.

At only two points on the circuit—Pau and Lausanne—the control post will not be opened before a fixed date.

This is to prevent the faster competitors from completing most of the course before the slower or less fortunate ones, and to ensure that all competitors shall fly the course under, as far as possible, the same weather conditions.

All intermediate controls will open at 07.00 hrs. and close at 20.00 hrs. Landings will be permitted between the official controls, but only the total elapsed time between the official controls will be taken in computing the average speed between the controls.

Should a competitor arrive at a control after the official closing time he will not be deemed to have arrived at that control until it is officially opened on the following morning.

If a competitor remains one night other than at an official landing place he will be penalised 15 marks. If he remains a second night away he will be penalised a further 30 marks, making 45 penalty marks in all.

If a competitor fails to cover one stage in a day he will be penalised 10 marks and if he fails to cover a stage in two days he will be penalised a further 20 marks making 30 penalty marks in all.

The maximum number of marks obtainable for regularity over the Circuit of Europe is 75.

The speed over the entire circuit will be calculated by adding the time taken to cover the official stages after the duration of the stay at the obligatory landing places only has been deducted.

Aircraft in Category I will be required to attain an average speed of at least 80 km.p.h. and those in Category II a speed of at least 60 km.p.h. All machines averaging below those speeds will be eliminated.

Allocation of marks for speed over the circuit will be as follows:—No marks will be awarded for Category I aircraft which average between 80 and 90 km.p.h. (49.7 and 56 m.p.h.) and Category II aircraft which average between 60 and 70 km.p.h. (37.3 and 43.5 m.p.h.).

Three marks per whole kilometre will be awarded for any speed between 91 and 135 km.p.h. (56.6 and 84 m.p.h.) in Category I, and between 71 and 115 km.p.h. (44 and 71.5 m.p.h. in Category II; two marks per whole kilometre between 136 and 155 km.p.h. (84.6 and 96.5 m.p.h.) in Category I and between 116 and 135 km.p.h. (72 and 84 m.p.h.) in Category II; and one mark per whole kilometre between 156 to 175 km.p.h. (97 and 108.8 m.p.h.) in Category I and 136 and 155 km.p.h. (84.6 and 96.5 m.p.h.) in Category II, all figures inclusive.

No further marks will be awarded above this figure.

As an instance, a competitor who averages 160 km.p.h. (99.4 m.p.h.) in Category I will be awarded: $(45 \times 3) + (40 \times 2) + (5 \times 1) = 180$ marks. Similarly a competitor who averages 130 km.p.h. (80.8 m.p.h.), in Category II will be awarded: $(45 \times 3) + (15 \times 2) = 165$ marks.

The maximum number of marks which can be awarded is 195.

EXAMINATION.

The examination of the practical qualities of the aircraft will take place at the Staaken aerodrome between Aug. 1 and Aug. 7. A maximum of 140 marks will be allocated in this examination which will be divided as follows:

Comfort, 42 marks; Undercarriage, 15 marks; Starting the engine, 12 marks; Prevention of fire, 6 marks; Dual control, 6 marks; Instruments, 15 marks; Life-saving apparatus, 14 marks; Facilities for dismantling and assembling aircraft, 30.

Each of these headings is subdivided for allotment of marks, and these subdivisions are enumerated hereafter under their respective headings.

Under "Comfort" 6 marks will be given for normal comfort, 6 for side-by-side seating, or 3 for telephone communicating between seats placed one behind the other, 9 for a third comfortable seat which must be occupied throughout the competition, 6 for limousine arrangement for all occupants, 9 for luggage space of given dimensions and 6 for special comfort.

Under "Undercarriage" 6 marks will be given for an axleless or divided-axle undercarriage and 9 for special devices such as brakes, etc.

Under "Starting" a maximum of 6 marks each will be given for method of starting and for time required for starting.

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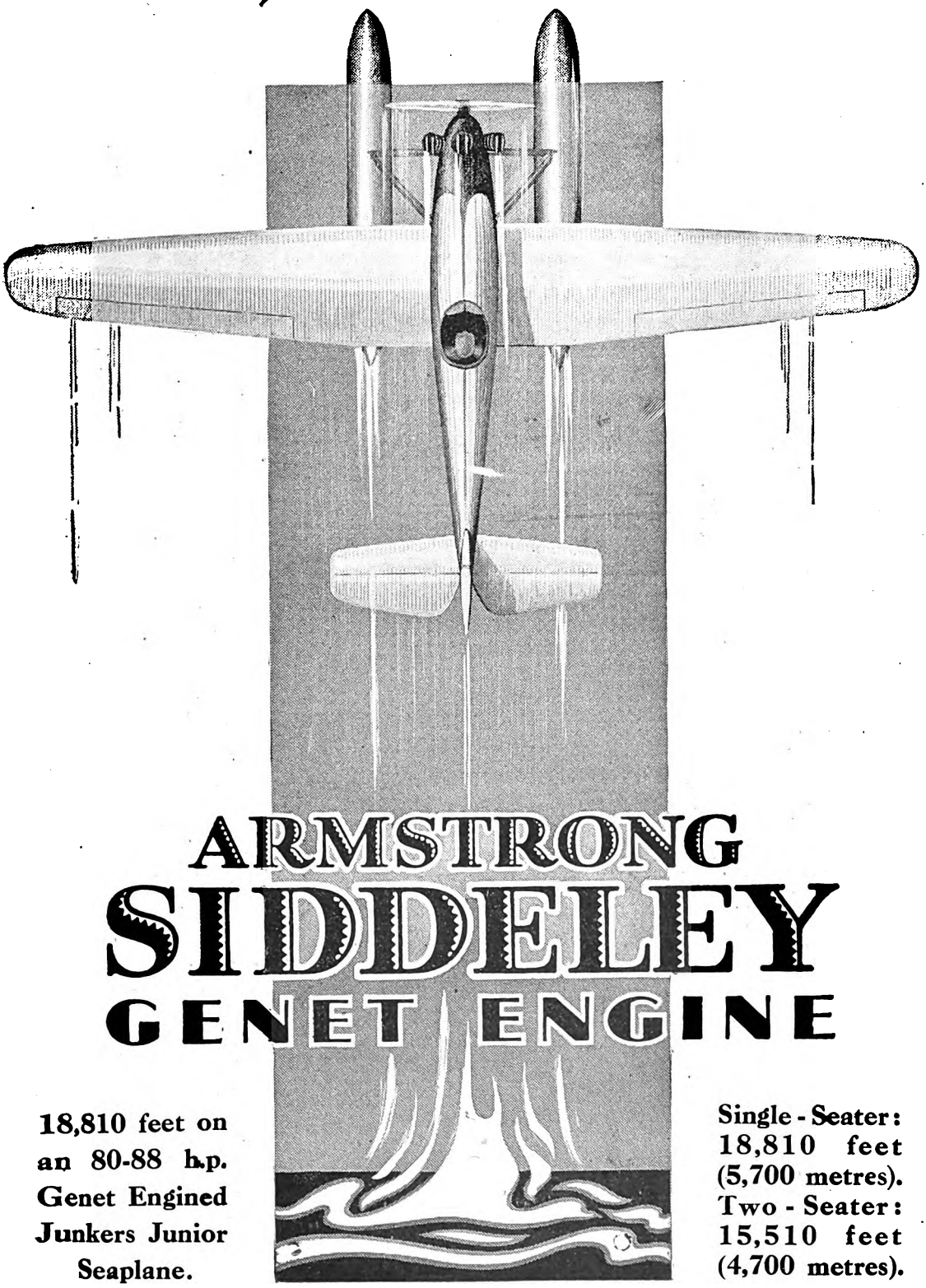
18,810 Feet



ARMSTRONG SIDDELEY GENET ENGINE

18,810 feet on an 80-88 h.p. Genet Engined Junkers Junior Seaplane.

Single-Seater: 18,810 feet (5,700 metres). Two-Seater: 15,510 feet (4,700 metres).

ARMSTRONG SIDDELEY MOTORS LIMITED, COVENTRY.

London: 10, Old Bond Street, W.1.

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Under "Prevention of fire" a maximum of 6 marks will be given for special devices for prevention of fire additional to those specified in the conditions for eligibility. To gain marks these devices must be carried throughout the competition and will be counted in the empty weight.

Under "Dual control," to qualify for the maximum of 6 marks, dual control gear, if fitted, must be carried throughout the whole competition but need not be installed for use. It will be counted in the empty weight.

Under "Instruments" 6 marks will be given for disposition of the specified instruments laid down in the regulations, and 9 marks for the fitting of turn indicators and chronometers based on the gyroscopic principle, or other recognised equivalent principle.

Under "Life Saving Apparatus" 6 marks will be awarded for the carriage of life-belts, life-jackets or air-bags and 8 marks for parachutes. All these devices must be carried throughout the competition, but they will not be included in the empty weight.

Under "Facilities for Dismantling and Assembling the Aircraft" 9 marks will be awarded for folding the wings, 6 for dismantling the wings, and 9 marks for the time taken in dismantling and assembling.

Aircraft must be dismantled and assembled by the pilot and not more than one passenger in less than 20 minutes for each operation. Aircraft must pass through an opening 3.5 m. x 3.5 m. (11.5 ft. x 11.5 ft.), and be towed by an automobile. No marks will be given if this latter condition is not fulfilled.

An additional 6 marks will be given for aircraft of all-metal construction, including the covering, if such aircraft is provided with a mooring or pegging-out device, which must be carried throughout the competition. This device will be included in the empty weight.

For the Take-off and Landing tests a maximum of 60 marks will be allotted. These tests will be made over a barrier 8 m. high and no marks will be allotted to a competitor who takes more than 400 metres (1,312 ft.) to get over the barrier in taking off or to pull up after passing over the barrier in landing.

Wheel brakes may be used so long as they are part of the permanent equipment of the aircraft and are used throughout the competition.

Two take-offs and two landings will be allowed and the better of the two tests will be taken as the basis for the award of marks in each test.

For the Fuel Consumption Test a maximum of 30 marks will be awarded. The test will be made of a closed circuit of 300 kms. and petrol of ordinary commercial quality will be supplied by the organising Committee.

PRIZES.

Money prizes to the total value of 350,000 francs (£2.820 approx.) will be awarded and these will be divided as follows:—

1st prize: 100,000 francs (£800 approx.); 2nd prize 50,000 francs (£400 approx.): 3rd prize, 25,000 francs (£200 approx.): 4th prize, 15,000 francs (£120 approx.), and 16 prizes of 10,000 francs (£80 approx.).

Any prizes not awarded will be divided among the other prize-winners beginning at No. 4 with a maximum of 8,000 francs (£65 approx.) for each prize. If any further sums remain to be distributed it will be divided between the 1st, 2nd and 3rd in proportion to the amount of these prizes.

THE CHANNEL.

The necessary steps to ensure the safety of competitors during their crossing of the English Channel has been taken by the Royal Aero Club and the Aéro Club de France. The Admiralty has placed a destroyer at the disposal of the Royal Aero Club and it is presumed that the recently-launched high-speed motor life-boat which is stationed at Dover will be available.

At St. Inglevert and Heston there will be two officials who will be authorised to prohibit the departure of competitors if weather conditions are considered to be dangerous.

Throughout the whole competition aerobatic flying will be prohibited under penalty of elimination.

Finally, the Regulations point out that as the Competition is of French origin only the rules *in French* will be considered as valid in the event of any dispute. Copies of these may be had on application to the Secretary, The Royal Aero Club, 3, Clifford Street, W.1.

THE ENTRIES.

Hereafter follows the complete list of entries grouped under their respective Aero Clubs:—

German Aero Club.

A1.—Verein Für Luftahrt Gladbach—B.F.W. M.23b—72/80 h.p. Siemens S.H.13—(Kinna).

A3.—Ditto—Klemm L.25e—80/100 h.p. Argus As.8—(Lusser).

A4.—Reinische Luftfahrtindustrie G.m.b.H.—Raab-Katzenstein RK.29 (Deutsche Motte)—Siemens S.H.14—(Raab).

A6.—Leichtflugzeugklub München—Phoenix L.2—72/80 h.p. Siemens S.H.13—(Schultes).

A7.—Dr. Von Langsdorff — Phoenix-Meteor — Siemens S.H.14—(Von Langsdorff).

A8.—Junkers Flugzeugwerk A.G.—Junkers Junior—80/88 h.p. Armstrong Siddeley Genet—(Roeder).

A9.—Junkers Flugzeugwerk A.G.—Junkers Junior—Ditto—(F. Risztics).

B1.—Osterr. Phoenix Flugzeugwerft G.m.b.H.—(Austrian) Phoenix-Meteor—Siemens S.H.14—(Kielhausen).

B2.—Ditto—Ditto—Ditto—(Guritzer).

B3.—Deutsche Verkehrsfliegerschule—B.F.W. M23c.—80/100 h.p. Argus As.8 (Morzik).

B4.—Ditto—Arado L.2a—80/100 h.p. Argus—(Stutz).

B5.—Ditto—Albatros L.101—80/100 h.p. Argus—(Stein).

B7.—Luftdienst G.m.b.H.—Klemm L.25a—40 h.p. Salmson—(Osterkamp).

B8.—Ditto—Klemm L.25e—80/100 h.p. Argus—(Poss).

B9.—F. W. Siebel—Klemm L.25e—80/100 h.p. Argus—(Dinort).

C1.—Ditto—Klemm L.25e—80/100 h.p. Argus—(Notz).

C2.—Ing. Ferdinand Graf Starhemberg—B.F.W. M.23c—80/100 h.p. Argus—(Graf Starhemberg).

C3.—Frhr. von Freyberg—B.F.W. M.23c—80/100 h.p. Argus—(von Freyberg).

C4.—Bayerische Flugzeugwerke A.G.—B.F.W. M.23c—72/89 h.p. Siemens S.H. 13—(Offermann).

C5.—Ditto—Ditto—Ditto—(von Koppen).

C6.—Ditto—Ditto—80/100 h.p. Argus—(von Weildau).

C7.—Ditto—Ditto—Ditto—(von Massenbach).

C8.—Arado Handels G.m.b.H.—Arado L.IIa—80/100 h.p. Argus—(von Dungern).

C9.—Arado Handels G.m.b.H.—Arado L.IIa—80/100 h.p. Argus—(Peschke).

D1.—Ditto—Ditto—Ditto—(Pasewaldt).

D2.—Albatros Flugzeugwerke G.m.b.H.—Albatros L.100—Ditto—(von Oertzen).

D4.—Akademische Fliegergruppe Darmstadt—D.18—Armstrong Siddeley Genet—(Neininger).

D5.—H. Simon—Klemm L.25.IVa—Armstrong Siddeley Genet—(Spengler).

D6.—Alexander Soldenhoff—Soldenhoff—40 h.p. Salmson—(Riedinger).

D7.—Leichtflugzeugklub München—Klemm L.251A—45/50 h.p. B.M.W.—(von Gravenreuth).

D8.—Ditto—Ditto—B.F.W. M.23b—Ditto—(Bohning).

D9.—Rheinische Luftfahrtindustrie G.m.b.H.—Raab-Katzenstein R.K.29—95/115 h.p. Siemens—(——).

E1.—Horst von Salomon—Klemm—Armstrong Siddeley Genet—(Benz).

E2.—Junkers Flugzeugwerk A.G.—Junkers Junior—80/92 h.p. Siemens—(Gothe).

E3.—Fritz Papenmeyer—Baumer B.VI—90 h.p. D.H. Gipsy—(Steindorf).

E4.—Wilhelm Huth—"Optimist"—40 h.p. A.B.C. Scorpion—(Hagen).

E5.—Mohamed Sidki (Egyptian)—Klemm—40 h.p. Salmson—(M. Sidki).

E6.—Fr. Siebel—Klemm L.26—80 h.p. Siemens—(Siebel).

E7.—Alfred Friedrich—D.H. Moth Special—115/125 h.p. D.H. Gipsy II—(——).

E8.—Bayerische Flugzeugwerke A.G.—B.F.W. M23c—80/100 h.p. Argus—(Kruger).

E9.—Ditto—Ditto—Ditto—(Loerzer).

F1.—Ditto—Ditto—Ditto—(King).

F2.—Ditto—Ditto—Ditto—(Polk).

Royal Aero Club of Great Britain.

K1.—Cirrus Aero Engines Ltd.—Avro Avian—105/115 Cirrus-Hermes—(Thorn).

K3.—De Havilland Aircraft Co. Ltd.—D.H. Moth—100 h.p. Gipsy—(Broad).

K4.—Spartan Aircraft Ltd.—Arrow—100/120 h.p. Gipsy II—(Andrews).

K5.—A. S. Butler—D.H. Moth—100/120 h.p. Gipsy II—(Butler).

K6.—The Hon. Lady Bailey—D.H. Moth—Gipsy—(Lady Bailey).

K7.—Maxwell D. Trench—Mono Special—110 h.p. Warner—(Lord Carbery).

K8.—The Rt. Hon. F. E. Guest—D.H. Moth—100/120 h.p. Gipsy II—(Miss Spooner).

French Aero Club.

L1.—P. Mauboussin—Mauboussin—40 h.p. Salmson—(——).

L2.—Comte de Lambilly (Belgian)—St. Hubert—110 h.p. Walter—(Maus).

L3.—Ludovic Arrachart—Caudron 193—95 h.p. Renault—(——).

L6.—Mme. Denise Collin—Albert A.62—95 h.p. Renault—(——).

L8.—E. Dewoitine—Dewoitine 95 h.p. Renault—(Doret).

L9.—Gustave Douchy—Douchy—40 h.p. Salmson—(Douchy).

M1.—Aéro-Club de l'Aisne—Caudron—95 h.p. Renault—(Plessis).

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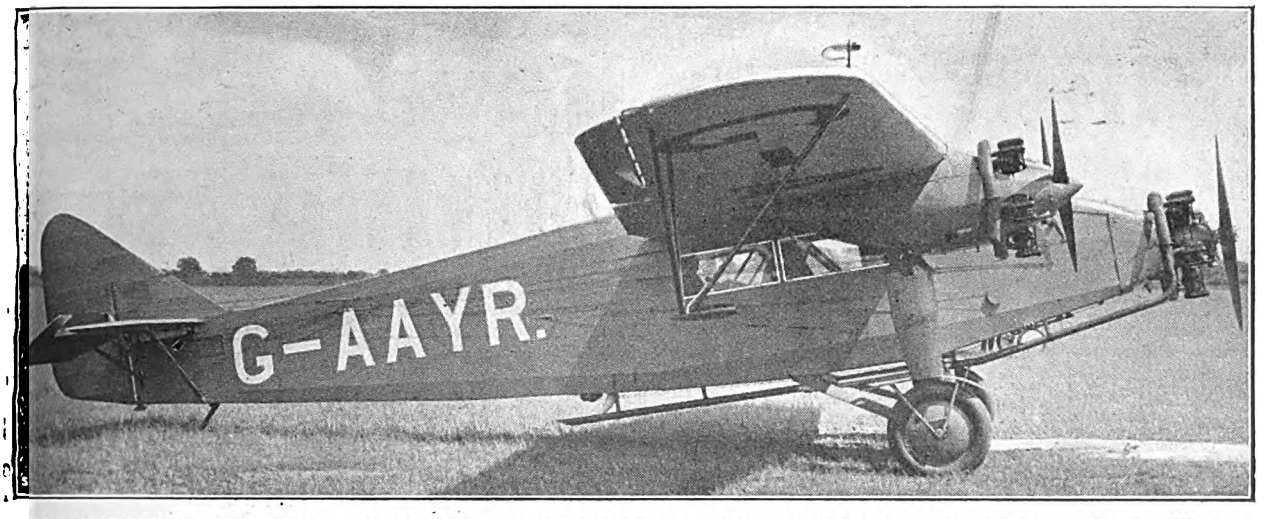


THE LATEST AVRO.—The Avro VI cabin monoplane (three Armstrong Siddeley Genet-Major engines) which is a more spacious and cleaned up version of the Avro V.—("*Aeroplane*" *photograph.*)

M2.—Réné Caudron—Caudron 193—95 h.p. Renault—(Pinat).
M3.—Guerchais et Henriot—Guerchais-Henriot 5—Ditto—(Bapt).
M4.—Jean de Permangle—Farman 220—Ditto—(Lallouette or Permangle).
M.5.—Club Aéronautique Universitaire—Mauboussin—40 h.p. Salmson—(Ducout).
M6.—Réné Caudron—Caudron C.232—95 h.p. Renault—(—).
M7.—Mlle. Maryse Hilsz—Morane-Saulnier Moth—95 h.p. D.H. Gipsy—(Mlle. Hilsz).

Polish Aero Club.

O1.—State Aircraft Works, Warsaw—P.Z.L.5—85/100 h.p. D.H. Gipsy—(Gedgowd).
O2.—Ditto—Ditto—Ditto—(Orlinski).
O3.—Komitet Wojewodzki L.O.P.P.—D.K.D.-V—85/95 h.p. Cirrus III—(Dzialowski).
O4.—Aeroklub Akademicki w Krakowie—S.1—85/95 h.p. Cirrus II—(Piotrowski).
O5.—Podlaska Wytwornia Samolotow—P.W.S.8—85 h.p. Walter Vega—(Dudzinski).
O6.—Ditto—P.W.S.50—85 h.p. Cirrus III—(Babinski).
O7.—Ditto—P.W.S.51—80 h.p. Armstrong Siddeley Genet—(Lewoniewski).
O8.—Ditto—P.W.S.52—85 h.p. D.H. Gipsy—(Rutkowski).
O9.—Aeroklub Rzeczypospolitej Polskiej—R.W.D.4—100/115 h.p. Cirrus-Hermes—(Zwirko).
P1.—Ditto—Ditto—Ditto—(Karpinski).
P2.—Ditto—Ditto—Ditto—(Bajan).
P3.—Ditto—R.W.D.2—40 h.p. Salmson—(Plonszynski).
P4.—Ditto—Ditto—Ditto—(Wieckowski).
P5.—Ditto—Ditto—Ditto—(Muslewski).

Swiss Aero Club.

Jean Broccard and Jean René Pierroz—Breda 15—110 h.p. Walter Venus—(Pierroz).
Charles Kolp—Klemm L.25—80/100 h.p. Argus As.8—(Kolp).
Dr. Friedrich Hansen—Müller G.M.G.—40 h.p. Statax—(Hansen).
Dipl. Ing. Hugo Schmid—Korsa T-II—50 h.p. Anzani—(Schmid).

Royal Spanish Aero Club.

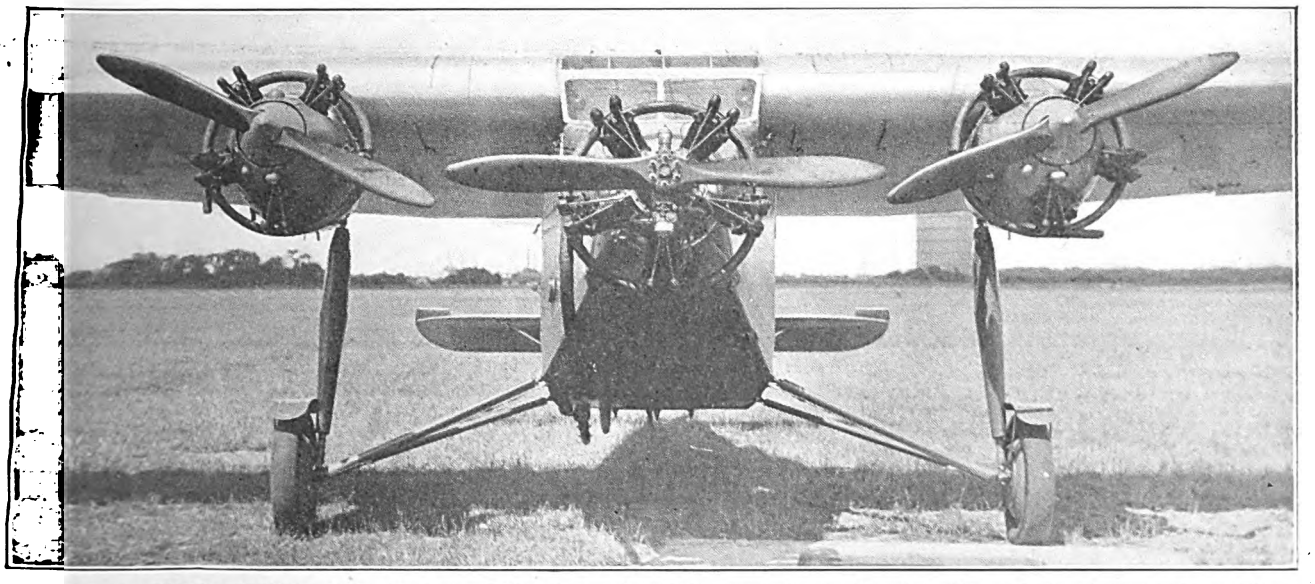
T1.—Royal Spanish Aero Club—C.A.S.A.—85 h.p. D.H. Gipsy—(Rodriguez).
T2.—Ditto—Ditto—Ditto—(Ordiales).
T3.—M. Ogara—Ditto—Ditto—(Haya).
T5.—Archduke Antonio Hapsburg-Bourbon—D.H. Moth—85 h.p. D.H. Gipsy—(Archduke Antonio Hapsburg-Bourbon).
T6.—Aero Club of Andalucia—D.H. Moth—85 h.p. D.H. Gipsy (Andres del Val).
T7.—Duque de Estremera—D.H. Moth—85 h.p. D.H. Gipsy—(Ansaldo).
T8.—M. Loring—Loring—85 h.p. D.H. Gipsy—(Rambaud).
T9.—Union Aerea—Junkers Junior—80 h.p. Armstrong Siddeley Genet—(Espinosa).

A TALE THAT IS TOLD.

They are telling a story about a famous aeroplane designer who has been in the game since the start and whose ideas were god-parents to the Light Aeroplane Movement. On the eve of the Race for the King's Cup he was seen sauntering round the entrants. Here and there he would stop, look at the list of handicaps, frown, and wander on. When he came opposite a certain Avian, now sure of fame as the first winner to be piloted by a woman, he stopped, looked at the machine and then its handicap. He looked at the machine again, and must have done a lightning calculation, for his next move was towards the "Tote."

So you see one *can* spot a winner and one can back the right machine—if you have been at the game long enough.

Meantime, what is to be done with the sum (said to be £75) which was the profit made out of the Royal Aero Club Tote? Is it to go to the Racing Fund or to the improvement of the Club premises?



THE LATEST AVRO.—A front view of the Avro VI cabin monoplane showing the raised wing engines, the mountings for which are now built into the leading edge of the wing.—("*Aeroplane*" *photograph.*)

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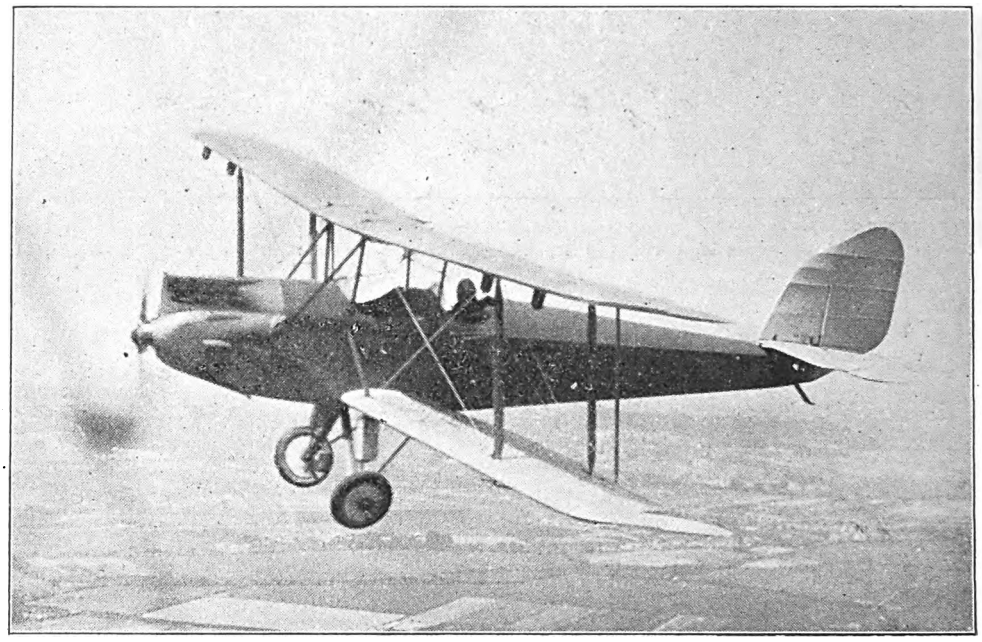
What you have been waiting for!



The New

SPARTAN ARROW

COMBINING all the well-known Spartan characteristics of robustness and stability with remarkable flying qualities and a high degree of comfort, the new Spartan "Arrow" is a notable advance in light aircraft construction. Here is a machine which is foolproof in the hands of a novice, yet whose light, well-balanced, positive control the expert cannot fail to appreciate. In taking-off and landing its safe flying qualities are particularly marked, for its short take-off and steep climb make the most difficult aerodromes seem easy, while the low-stalling speed, and exceptional control right up to that speed, make it equally easy to land. The well-known Spartan long travel undercarriage has been retained in the new model, and makes a good landing out of what would be a bad one in other machines. A high degree of interchangeability is characteristic of the "Arrow" as of previous Spartan models.

It has been the designer's object to make the cockpits as comfortable as those of a car. They are roomy, free from draught, and provided with wide doors.

The range of view has received special attention, and as a result it is claimed to be an advance on any previously obtained in this type of two-seater.

Here is the light aeroplane you have been waiting for!

PRINCIPAL CHARACTERISTICS.

WEIGHTS. Fully-laded weight: 1,750 lbs. in the normal, and 1,560 lbs. in the aerobatic category. Useful load in the former category: approximately 600 lbs.

DIMENSIONS. Span: 30 ft. 7 ins. Length: 25 ft. Height: 9 ft. 6 ins. Width folded: 9 ft. 5 ins. Wing Area: 251 sq. ft.

PERFORMANCE. Top Speed: Up to 107 m.p.h., according to engine. Stalling speed: 38-41 m.p.h. Rate of Climb: Up to 830 ft./min. according to engine.

ENGINE. Gipsy II, Cirrus-Hermes, Gipsy I, Cirrus Mark III.

INTERCHANGEABILITY. Wings on each side interchangeable with those on same side. Elevators and ailerons interchangeable among themselves. Sides of undercarriage interchangeable. One spare wire can be fitted as flying or landing wire.

FURTHER DETAILS ON REQUEST.

SPARTAN AIRCRAFT LTD.

WESTON . . . . SOUTHAMPTON.

Aeromarine.

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THE ROYAL AIR FORCE.

The London Gazette.

ROYAL AIR FORCE.

July 8.

GENERAL DUTIES BRANCH.— Capt. H. M. A. Day, A.M., R.M., is granted a perm. comn. as a Flt. Lt., with effect from June 21, and with seniority of July 1, 1928.

The following are granted S.S. comns. as Plt. Offs. on probation with effect from and with seniority of June 27:—P. S. Ball, J. W. Bateman, R. B. Brown, J. E. F. Chapman, G. J. S. Chatterton, M. V. M. Clube, A. R. Collins, W. R. Farley, E. J. Gracie, G. W. P. Grant, R. G. Harman, I. B. Hills-Spedding, W. E. Hooper, R. L. Hoyle, A. J. McDougall, H. W. Mermagan, J. B. S. Monypenny, D. G. Morris, G. N. Snarey, G. G. Stead, N. C. M. Styche, M. R. D. Trewby, A. E. Upchurch, R. Wardrop. Plt. Off. on probation T. W. Hodgson is confirmed in rank (June 18).

The following Plt. Offs. are promoted to the rank of Flg. Off. (June 15):—B. T. Shelley, F. C. Sturgiss, E. R. M. Walker, J. R. Scarlett.

The following are promoted with effect from July 9:—FLT. LTS. TO BE SQ. LDRS.—S. E. Toomer, D.F.C., V. H. Tait.

FLG. OFFS. TO BE FLT. LTS.—T. G. Pike, H. W. Pearson-Rogers, D. S. E. Vines, A. H. Willetts, A. H. Montgomery.

The following are placed on the half-pay list, Scale A:—Wing Cdr. A. R. Arnold, D.S.C., D.F.C. (July 6); Sq. Ldr. J. Noakes, A.F.C., M.M. (June 27).

The following Flg. Offs. are transferred to the Reserve, Class A (July 7):—G. P. Butcher, H. A. S. Byrne, H. V. Crowder, C. A. C. Patton, E. C. L. Richardson, R. C. Whitle. The following are transferred to the Reserve, Class C:—Flt. Lt. H. N. Hawker (June 26); Flg. Off. W. L. Robertson (July 7); Flg. Off. W. J. M. Spaight (July 7); Flg. Off. T. B. Fenwick (July 9).

Flt. Lt. R. E. B. Rose relinquishes his S.S. comn. on completion of service (July 9). Flg. Off. J. W. Busteed relinquishes his S.S. comn. on account of ill-health (July 7). The S.S. comns. of the following Plt. Offs. on probation are terminated on cessation of duty:—R. D. Cotton (June 27); H. G. Burgess (July 9); E. S. Ennals (July 9).

ACCOUNTANT BRANCH.—The following Plt. Offs. on probation are confirmed in rank and promoted to the rank of Flg. Off. (June 3):—H. D. Nicholson, G. E. Shirley.

RESERVE OF AIR FORCE OFFICERS.

GENERAL DUTIES BRANCH.—The following are granted comns. in Class AA (ii) as Plt. Offs. on probation:—J. K. Lawrence (June 25); G. D. M. Blackwood (June 26); W. C. Farr (June 26). T. N. C. Burrough is granted a comn. in the Special Reserve as a Plt. Off. on probation (May 31).

Plt. Off. on probation T. Herbert is confirmed in rank (Oct. 11, 1929).

Flg. Off. J. F. Dewar relinquishes his comn. on completion of service (June 14).

AUXILIARY AIR FORCE.

GENERAL DUTIES BRANCH.—No. 601 (COUNTY OF LONDON) (BOMBER) SQUADRON.—Flg. Off. W. E. Windham resigns his comn. (July 8).

PRINCESS MARY'S ROYAL AIR FORCE NURSING SERVICE.

Sister Miss E. Crozier is placed on the retired list at her own request (July 6).

Appointments.

Week ending July 14.

GENERAL DUTIES BRANCH.—Group Captain J. B. Bowen, O.B.E., to No. 3 F.T.S., Grantham, to command, 8/7.

Wing Commander A. R. Arnold, D.S.C., D.F.C., to Half-pay List, 6/7.

Squadron Leaders A. Coningham, D.S.O., M.C., D.F.C., A.F.C., to C.F.S., Wittering, 5/7. J. Noakes, A.F.C., M.M., to Half-pay List, 27/6. T. W. Elsdon, to H.Q., Coastal Area, 11/7.

Flight Lieutenants M. C. Dick, A.F.C., to A. and G. School, Eastchurch, 11/7. A. H. H. Macdonald, to No. 1 (Indian Wing) Station, 17/6. D. W. Gibbon, to H.A.D., Henlow, 16/6. A. D. Macdonald, M.C., to H.Q., 'Iraq Command, 3/7. H. H. V. Tristem, to R.A.F. Practice Camp, Catfoss, 1/7.

Flying Officers J. G. Parkin, to R.A.F. Depot, Uxbridge, 16/6. R. J. Stone, to R.A.F. Depot, Uxbridge, 13/6. R. C. Edwards, to H.A.D., Henlow, 16/6. M. J. Du Cray, to No. 84 Sqdn., 'Iraq, 17/6. H. J. Walker, to H.A.D., Henlow, 9/5. P. J. H. Halahan, to No. 14 Sqdn., Palestine, 4/7. G. S. King, to No. 45 Sqdn., Middle East, 4/7.

Pilot Officers T. E. Whittome, to R.A.F. Depot, Uxbridge, 1/7. T. W. Hodgson, to No. 26 Sqdn., Catterick, 1/7. L. E. Jarman, to No. 14 Sqdn., Palestine, 4/7. The undermentioned Pilot Officers are posted to R.A.F. Depot, Uxbridge, on appointment to S.S. Comns. on probation with effect from 27/6:—P. S. Ball, J. W. Bateman, R. B. Brown, J. E. F. Chapman, G. J. S. Chatterton, M. V. M. Clube, A. R. Collins, W. R. Farley, E. J. Gracie, G. W. P. Grant, R. G. Harman, I. B. Hills-Spedding, W. E. Hooper, R. L. Hoyle, A. J. McDougall, H. W. Mermagen, J. B. S. Monypenny, D. G. Morris, G. N. Snarey, G. G. Stead, N. C. M. Styche, M. R. D. Trewby, A. E. Upchurch, R. Wardrop.

MEDICAL BRANCH.—Flight Lieutenant J. Parry-Evans, to Central Medical Establishment, 4/8.

A Fatal Accident.

The Air Ministry regrets to announce that as the result of a collision at Hinaidi, 'Iraq, between two Wapiti machines of No. 55 (Bomber) Squadron, Hinaidi, on July 9, No. 362338, Sgt. John Ritchie Gordon, the pilot of one of the aircraft, was killed. His passenger and the occupants of the other machine were not injured.

The Iceland Cruise.

The following description of the cruise of two Blackburn Iris flying-boats of No. 209 (Flying-boat) Squadron, R.A.F., to Iceland for the recent millenary celebrations of the Icelandic Parliament, is taken from *The Times* of July 7 with due acknowledgments:—

H.M. Flying-boat S 1264, of 209 Squadron, stationed at Mountbatten, Plymouth, was one of the two flying-boats detailed to proceed to Reykjavik, Iceland, to be present at the millenary celebrations of the Althing, or Icelandic Parliament. Under the command of Wing Commander Smith, and in company with her sister vessel S 1263, she proceeded first to Stornoway, a distance of 556 miles, in 5¼ hours, where she took in 550 gallons of petrol in two-gallon tins.

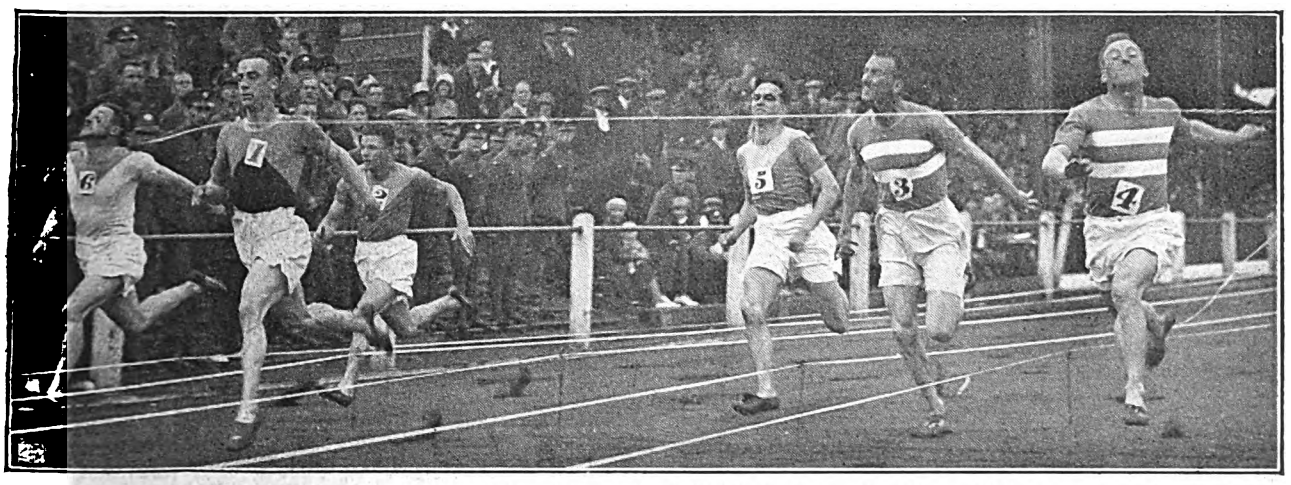
At Stornoway, however, Wing Commander Smith developed appendicitis, and had to be admitted to hospital, the command of S 1264 passing to Squadron Leader Jones. Here, also, S 1263 found water in her fuel system, and after some time lost in waiting, S 1264 proceeded alone.

The 230-mile passage to the Faroes was accomplished in two hours 55 minutes, this usually foggy area being found very clear. The Danish authorities were most courteous and obliging, and on her arrival the flying-boat took in 760 gallons of petrol in something under two hours.

On leaving the Faroes S. 1264 shaped course for Hornafjord, Iceland, with variable winds and good visibility. Only two ships were sighted on the way, this part of the sea being almost deserted. Visibility lessened as time went on and when the coast of Iceland was sighted, 3¾ hours after leaving, had shut down to about 10 miles. Skirting the coast S. 1264 then headed for Reykjavik, passing on her way about 50 wrecks of trawlers and other fishing craft washed ashore on the south Icelandic coast on a bank known locally as "The Graveyard," and enjoying an excellent view of the geysers.

Reykjavik was finally reached soon after 8 p.m. on June 24, six hours and 35 minutes after leaving the Faroes, the distance being 425 miles. The total actual flying time from the air station at Mountbatten was 15 hours 40 minutes, and the distance about 1,211 miles.

While at Reykjavik S 1264 made various flights, and on one of these occasions Corporal Paull, R.A.F., her engineer, became seriously



BREAKING THE TAPE.—The finish of the 100 Yards Individual Championship, which was won by L-AC. Elliott, the holder of the R.A.F. Record. Second from the right is S-M. F. Mawby, the veteran runner, who finished fourth.—(*"Aeroplane" photograph.*)

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ill while in the air. As he was suffering acutely a wireless signal was promptly made to H.M.S. *Rodney* for medical assistance, and the flying-boat landed and returned to her moorings. A boat with the medical officers on board was alongside within 15 minutes from the time signal had been made, and Corporal Paull was taken on board the battleship and operated upon the same afternoon for a perforated gastric ulcer. He proceeded to England in the *Rodney*, and is now progressing favourably.

On her return journey to England S 1264 took off from Reykjavik at 9.28 a.m. on July 2 and landed at Stornoway, a distance of 640 miles, at 4.35 p.m., afterwards proceeding to Plymouth by way of Stranraer and arriving on July 4. S 1264 is a Blackburn Iris reconnaissance and coastal patrol flying-boat, fitted with three 650 h.p. Rolls-Royce Condor engines. Her maximum speed is something over 100 knots and her cruising speed between 80 and 85. Her weight is nearly 15 tons, and during her flight to Iceland she carried a crew of nine. I understand that her habitability, comfort, and roominess were much appreciated by those on board.

By Error.

In the leader on the R.A.F. Display the statement appeared that Flg. Off. H. A. Purvis, who was one of the officers who took part in the display of combined acrobatics at the Display in 1929, had since been killed in an accident caused by over-confidence amounting to carelessness. One is happy to state that Mr. Purvis is alive, and doing good work at the R.A.F. Training Base at Leuchars, where Naval Officers are trained for the Fleet Air Arm.

Precisely how to apologise neatly to a pilot for saying that he had killed himself through over-confidence when he is still alive is rather difficult to devise. Anyhow, the assumption is that Mr. Purvis has not been over-confident, though his habitually skilful flying indicates that he has at any rate complete confidence in himself and his machine. One can only tender him a public apology and hope that he may long continue his good work, and win distinction and promotion.—C. G. G.

Observer Corps Exercises.

The Annual Exercises of the Observer Corps are now taking place and will continue until the end of July.

The area of this year's exercises consists of the coastal counties from Suffolk to Hampshire and operations are between 20.00 hours and 22.00 hours.

Coastguard Stations are, by permission of the Board of Trade, co-operating this year in the exercises.

The Royal Air Force are providing the necessary aircraft for the tests. The sole function of these aircraft is to fly over the counties in which the Observer Corps is established, except that no flights are being made in the immediate vicinity of London.

The Observer Corps consists of civilians enrolled as Special Constables. The training of the Corps is in the hands of Air Commodore E. A. D. Masterman. C.B., C.M.G., C.B.E., A.F.C., R.A.F. (retired), who is responsible to the Air Officer Commanding-in-Chief, Air Defence of Great Britain.

The Observer Corps mans Listening Posts and Centres throughout the country. Each Centre is in direct telephonic communication with its Posts and also with Headquarters of the Air Defence of Great Britain. A simple system of plotting on maps with discs and counters at the Centres and Headquarters keeps the Air Defence of Great Britain in constant and immediate receipt of enemy movements.

Vacancies for Apprentice Clerks.

The Air Ministry announces that vacancies exist in the Royal Air Force for well-educated boys, between the ages of 15½ and 17, to enter as apprentice clerks this month, in October, and in January next. The appointments will be made partly by the direct entry of boys who have obtained an approved school certificate, and partly by means of an open competition which will be held by the Civil Service Commission in October at various centres.

Detailed information regarding the apprentice clerk scheme can be obtained from the Royal Air Force (Apprentice Clerks' Department), Gwydyr House, Whitehall, S.W.1. Successful candidates will be required to complete, in addition to the training period, 12 years' Regular Air Force service after reaching the age of 18. At the age of 30 they may return to civil life or may be permitted to re-engage to complete time for pension.

Boys entered under this scheme undergo a two-years' course of training in clerical duties, typewriting, shorthand, bookkeeping and practical office routine, during which time their general education is continued under a staff of graduate teachers.

The apprentice clerks are paid 1s. a day for the first year and 1s. 6d. a day afterwards. The subsequent starting rates of pay, varying from 3s. to 4s. 6d. a day (21s. to 31s. 6d. a week), depend upon the degree of success they achieve at their final examination. In addition, they receive free board and lodging and a uniform allowance.

Princess Mary's R.A.F. Nursing Service.

Her Royal Highness Princess Mary, Countess of Harewood, G.B.E., honoured the Matron-in-Chief and Members of Princess Mary's R.A.F. Nursing Service at an At Home given by them at Grosvenor House, Park Lane, on July 9.

The Royal Air Force Nursing Service was established in June, 1918, and five years later was honoured with the designation Princess Mary's R.A.F. Nursing Service. Its first establishment was a Matron-in-Chief, four Matrons and forty Sisters and Staff Nurses. They did duty at Station sick-quarters in the various training establishments of the R.A.F. in the Home Commands. The permanent establishment is now a Matron-in-Chief, Miss J. Cruickshank, C.B.E., R.R.C., five Matrons, two Senior Sisters, seventy-three Sisters, and sixteen Staff Nurses. They are stationed in R.A.F. Hospitals in Halton, Cranwell, Hinaidi, Palestine and Aden and in Station Sick Quarters throughout the Service.

Members of the Service wear a distinctive uniform and have the status of officers.

The R.A.F. Old Comrades' Association.

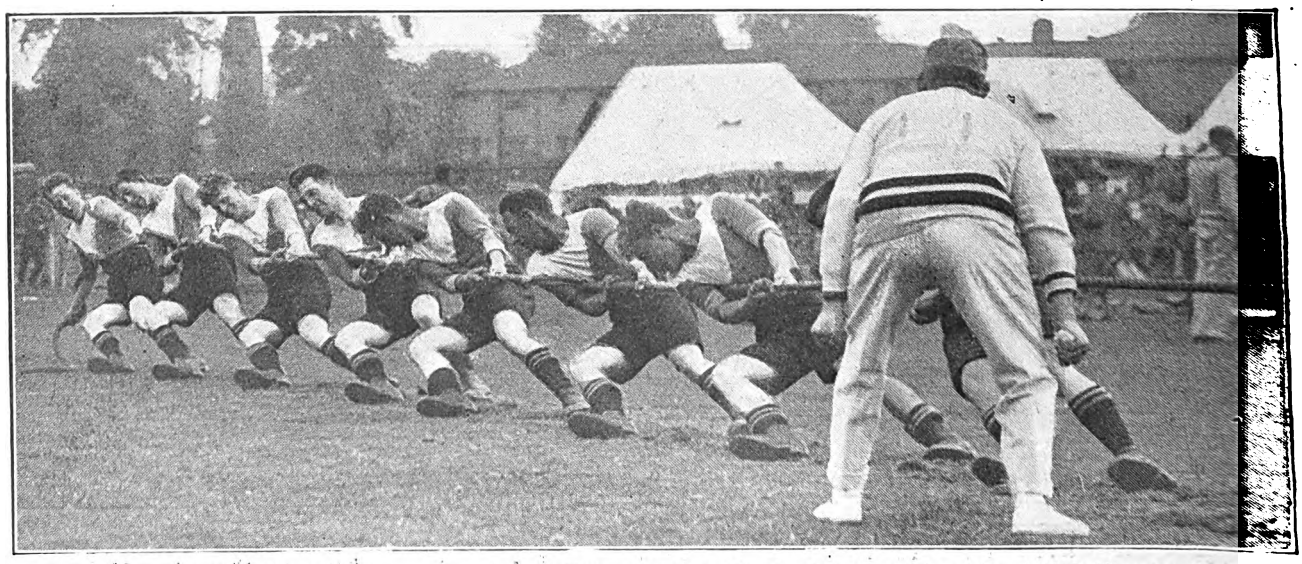
The first general meeting of the R.A.F. Old Comrades' Association was held on Saturday, July 12, at the Queen's Hotel, W.C. There was a large gathering of past members of the service, most of whom were enrolled at the close of the meeting.

Air Commodore C. R. Samson, C.M.G., D.S.O., A.F.C., was in the chair and was introduced to the meeting by S-M. Goodhand, who gave a brief outline of the progress that had so far been made in the formation of the movement.

Marshal of the Royal Air Force, Lord Trenchard, was elected President of the Association. The provisional regulations drawn up by the provisional committee and prepared by the honorary solicitors of the Association were read and approved.

A central committee was elected and consists of the following:—Air Cmdre. C. R. Samson, C.M.G., D.S.O., A.F.C., Air Cmdre. B. C. H. Drew, C.M.G., C.B.E., Group Capt. E. F. Briggs, D.S.O., O.B.E., Group Capt. R. P. Ross, D.S.O., A.F.C., Wing Cdr. J. W. Cordingley, O.B.E., Sq. Ldr. J. L. K. Pearce, O.B.E., Flt. Lt. C. E. Cullen, S-M. Goodhand, S-M. Johnson, Lt. Galer, Major Jarman, M.C.

Mr. W. Coen, to whom the Association owes much of its



WELL COACHED.—The Felixstowe Tug-of-War Team winning the Junior Championship at Uxbridge on July 12. In the foreground is a view of S-M. James, the team's coach.—("*Aeroplane*" *photograph.*)

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present development, consented to continue to act as Honorary Secretary, and *The Planesman* was approved as being the official organ of the Association.

The Association thus becomes an established fact and has already a large membership. The annual subscription is five shillings and intending members should communicate with the Hon. Sec. of the Association at the R.A.F. Station, Eastchurch.—C. A. S.

The R.A.F. Athletic Championships.

The R.A.F. Athletic Championships were held at the Stadium, Uxbridge, on July 9, 10, 11 and 12. All heats and a few finals were completed on the first two days, the Three Mile Championship was run on the third day and the rest of the finals were finished on the last day. The number of spectators present was very poor on all four days and even on the last day which was a Saturday there were not half as many people as there have been in previous years. This is difficult to understand because the standard of athletics in the R.A.F. is always high, the conditions are extremely pleasant at Uxbridge and those who train so hard all the year for the honour of their Stations in the Championships deserve every possible support.

The weather on the first three days was fine and rather hot but on the last day it was much cooler and very threatening with low clouds,—but no rain fell.

The King's Challenge Cup, presented by His Majesty to the Unit scoring the greatest number of points in the Open Competition, was won by Halton with 47 points. Uxbridge was second with 45 points, Henlow third with 44 points, Cranwell fourth with 34 and Manston fifth with 22. The ownership of the Cup for the next twelve months was in doubt up to the last moment and depended on the points gained for their teams by the competitors in the One Mile Open Relay Team Championship. The race was watched with wild excitement and continual cheers from the spectators.

The Air Council Cup presented by the Air Council to the Unit scoring the greatest number of points in the Junior Competition (for Units with an establishment not exceeding 500 strength) was won by Sealand with 36 points. Digby scored 34, Upavon 22, Tangmere 19, Gosport 18, Andover 15, Shrewsbury and Felixstowe 13 each, Netheravon 11, Old Sarum 6, Calshot 5, Farnborough and Bicester 3 each and Grantham 1.

The Challenge Cup presented to the Air Defence of Great Britain Unit scoring the greatest number of points was awarded to Upavon.

A new R.A.F. record was put up by L-AC. D. O. Finlay (Tangmere), who won the 120 yards hurdles in 15 7/10ths seconds, beating his own record by 2/10ths of a second. L-AC. Finlay also helped to win the 360 Yards Hurdles Relay for his Station and jumped third in the Junior High Jump. He won the 120 Yards Hurdles in 1928 while still an Aircraft Apprentice at Halton. He has been chosen to represent England in the Hurdles at the British Empire Games in Canada.

L-AC. R. H. Thomas, the holder of the Amateur Athletic Association and R.A.F. Records for the One Mile won the One Mile Individual Championship in his previous record time of 4 minutes, 20 1/5th seconds. He also finished first in the One Mile Open Team Championship. He did not defend his R.A.F. title in the Half Mile Individual Championship which he won last year in better time than the English Native Record. L-AC. Thomas has also been chosen to represent England in the British Empire Games.

Corporal R. F. Eyles (Henlow) put up a new R.A.F. Record in the Javelin-Throwing Championship with a throw of 162 ft. 3 inches, beating his own record by 1 ft. 0¼ inch.

Pilot Officer H. Simmons (Sealand) won the High Jump with a jump of 6 ft. beating the holder of the R.A.F. Record, Flt. Lt. F. E. Nuttall, by 3 inches, but failing to equal the Record by ½ inch.

THE LAST LAP.—The One Mile Open Team Championship, which was won by L-AC. Thomas (lying third), the A.A.A. and R.A.F. Mile Champion.
—(*"Aeroplane" photograph.*)

The Tug-of-War (110 stone) Open Championship was won by Cranwell who beat Uxbridge by two pulls to nil having beaten Henlow in the semi-finals. The Tug-of-War (88 stone) Junior Championship was won by Felixstowe by two pulls to nil against Andover after beating Gosport in the semi-finals.

The results in detail were:—

Three Miles.—AC. G. H. Lang (Upavon), 1; Cpl. S. Ferris (holder) (Uxbridge), 2; AC. Moore (Hendon), 3. 15 min. 14 3/5 sec.

Half Mile.—AC. Brown (Martlesham Heath), 1; L-AC. Bassett (Old Sarum), 2; L-AC. Green (Old Sarum), 3. 2 min. 2 2/5 sec.

100 Yards.—L-AC. T. W. Elliott (holder) (Catterick), 1; Sjt. Coote (Upavon), 2; Cpl. G. Moffatt (Halton), 3. 10 1/5 sec.

One Mile (Junior) Team. — L-AC. Allen (Sealand), 1; AC. Lang (Upavon), 2; AC. Swift (Sealand), 3. 4 min. 39 sec. Teams.—Sealand, 1; Shrewsbury, 2; Felixstowe, 3.

Putting the Shot.—Flg. Off. Knox (Eastchurch), 38 ft. 3½ in., 1; Flg. Off. Hope (Tangmere), 2; Cpl. Eyles (Henlow), 3. Senior Team.—Henlow, 102 ft. 1 in., 1; Halton, 98 ft. 4 in., 2; Uxbridge, 96 ft. 9½ in., 3. Junior Team.—Tangmere, 71 ft. 0¾ in., 1; Sealand, 67 ft. 3 in., 2; Gosport, 65 ft. 2½ in., 3.

One Mile (Senior) Team.—L-AC. R. H. Thomas (Henlow), 1.; L-AC. Hester (Uxbridge), 2; AC. Langley (Halton), 3. Time 4 min. 38 3/5 sec. Teams.—Uxbridge, 1; Henlow, 2; Halton, 3.

Two Miles Relay (Junior).—Old Sarum, 1; Sealand, 2; Andover, 3. 8 min. 42 1/5 sec.

Two Miles Relay (Open). — Halton, 1; Henlow, 2; Cranwell, 3. 8 min. 40 9-10 sec.

Tug-of-War (Open). — Cranwell beat Uxbridge by 2 pulls to 0. (Junior).—Felixstowe beat Andover by 2 pulls to 0.

High Jump.—Plt. Off. H. Simmons (Sealand), 6 ft. 1 in.; Flt. Lt. F. E. Nuttall (holder) (Digby), 5 ft. 9 in., 2; L-AC. Finlay (Tangmere), 5 ft. 5¾ in., 3. Open Team. — Halton (holders), 15 ft. 7¾ in., 1; Uxbridge, 15 ft. 4½ in., 2; Henlow, 15 ft. 4 in., 3. Junior Team.—Digby, 11 ft. 3¼ in., 1; Sealand, 11 ft. 1¼ in., 2; Tangmere, 10 ft. 7½ in., 3.

A GOOD FIELD.—The start of the One Mile Junior Team Championship with a field of 76. The winner, L-AC. Allen (Sealand), can be seen in the front numbered appropriately 1.—(*"Aeroplane" photograph.*)

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Quarter-Mile Relay (Junior).—Gosport, 1; Netheravon, 2; Digby, 3. 46 0/10 sec.

Quarter-Mile Relay (Open).—Halton, 1; Henlow (holders), 2; Cranwell, 3. 46 3/10 sec.

360 Yards Hurdles Relay (Junior).—Tangmere (holders), 1; Sealand, 2; Upavon, 3. 51 1/5 sec.

360 Yards Hurdles (Open).—Halton (holders), 1; Uxbridge, 2; Henlow, 3. 52 5/10 sec.

One Mile Relay (Junior).—Sealand (holders), 1; Netheravon, 2; Digby, 3. 3 min. 37 1/10 sec.

One Mile Relay (Open).—Cranwell, 1; Henlow (holders), 2; Halton, 3. 3 min. 34 9/10 sec.

Long Jump (Juniors).—Individual Competition.—Flg. Off. C. R. White (Digby), 22 ft. 2¼ in. 1; Sjt. D. I. Coote (Upavon), 2; L-AC. Finlay (Tangmere), 3. Team Competition (aggregate of two).—Digby, 43 ft. 0¼ in., 1; Upavon, 42 ft. 11½ in., 2; Sealand, 42 ft. 1½ in., 3.

Long Jump (Seniors).—Individual Competition.—Cpl. Allen (Halton) and AC. Court (Henlow), 21 ft. 2¾ in., equal 1; Sjt.-Mjr. Bradbury (Uxbridge), 3. Team Competition (Aggregate of three).—Uxbridge, 60 ft. 10 in., 1; Halton, 60 ft. 8¼ in., 2; Henlow, 60 ft. 0¾ in., 3.

Two Miles Walk (Individual).—AC. Murfitt (Manston), 1; AC. Peters (Gosport), 2; L-AC. Chalmers (West Drayton), 3. 16 min. 42 sec.

One Mile (Individual).—L-AC. R. H. Thomas (Henlow) (holder), 1; AC. Brown (Martlesham Heath), 2; L-AC. Bassett (Old Sarum), 3. 20 1/5 sec.

120 Yards Hurdles.—L-AC. Finlay (Tangmere), 1; F. O. Jordan (Gosport), 2; Plt. Off. White (Digby), 3. 15 7/10 sec.

440 Yards.—Cpl. Henley (Henlow), 1; L-AC. Evans (Martlesham Heath), 2; AC. Hill (Uxbridge), 3. 51 9/10 sec.

220 Yards.—L-AC. Elliott (Catterick) (holder), 1; AC. Thrower (Grantham), 2; L-AC. McIntosh (Digby), 3. 23½ sec.

Pole Jump.—L-AC. Rook (Sealand), 10 ft. 1 in., 1; AC. Boyd (Donibristle) (holder), 9 ft. 9 in., 2; Cpl. Ray (Gosport), 9 ft. 2 in., 3.

Throwing the Javelin.—Cpl. Eyles (Henlow) (holder), 163 ft. 3 in., 1; AC. Neale (Gosport), 148 ft. 10 in., 2; AC. Ray (Henlow), 123 ft. 5 in., 3.

At the end of the final day the trophies, cups and medals were presented to the winners by the Hon. Lady Salmond, who accepted a bouquet from the Aircraft Apprentice who was Captain of the Halton Team.—C. M. MCA.

Inter-Services Polo.

The annual Polo match between the Royal Navy and the Royal Air Force for the Duke of York's Challenge Cup was played at Ranelagh on July 8. The Navy beat the R.A.F. by 10 goals to 6½, the R.A.F. having received 1½.

This match was first played in July 1928, when the Navy won by 7 goals to 4. Last year the R.A.F. won by 7½ goals to 5. The conditions governing the Challenge Cup are:—

(1) To be played annually at Ranelagh Club. (2) Open to teams of past or present officers of (a) the Royal Navy and (b) the Royal Air Force. (3) To be played under handicap. (4) No player to be or have been in possession of a handicap of five or more. (5) The Challenge Cup to be held for one year by the Captain of the winning team.

The first chukka was only one minute old when the Navy got a goal from a penalty and a minute later the R.A.F. replied with a goal. However, the Navy scored two more goals before the first interval. The second chukka was more even and the score remained the same. In the third chukka the Navy scored three more goals and the Air Force replied with one. The game got much faster by the fourth chukka, but in spite of a tough defence by the R.A.F. the Navy scored two more goals. In the fifth chukka the Navy scored two goals in quick succession. The Air Force then began to show better combination and got through the Navy's defence. In the sixth chukka the Air Force were on top, but only managed to score one goal.

The teams were:—

Royal Navy.—(1) Capt. R. A. R. Neville, (2) Lieut. E. Heywood-Lonsdale, (3) Lt.-Cdr. Lord Louis Mountbatten, (Back) Lt.-Cdr. C. E. Lambe.

Royal Air Force.—(1) Group Capt. the Rev. H. Beauchamp, (2) Group Capt. J. Baldwin, (3) Air Cmdre. T. C. R. Higgins (Back), Sq. Ldr. W. H. de W. Waller.

Group Captain H.R.H. the Duke of York, K.G., who was accompanied by H.R.H. Prince George, Admiral Sir Roger Keyes and Air Chief Marshal Sir John Salmond, watched the match and at the end of it presented the Challenge Cup and the Souvenir Cups to the winning team.—C. M. MCA.

Inter-Services Cricket.

The Army beat the Royal Air Force at the Oval on July 5, 7 and 8 by six wickets. The R.A.F. went in first and made 118 runs, of which Mr. N. M. Jerram made 43 not out and Mr. A. J. Holmes made 30. The Army bowling and fielding was excellent. The Army made 302 in their first innings, Mr. L. Williams contributing 107. Sq. Ldr. R. E. G. Fulljames took six wickets for 96 runs.

In their second innings the R.A.F. made 336 runs. Wing Cdr. C. H. B. Blount made 110, Flt. Lt. C. D. Adams 46 not out, Sq. Ldr. B. E. Baker 43 and Mr. N. M. Jerram 35.

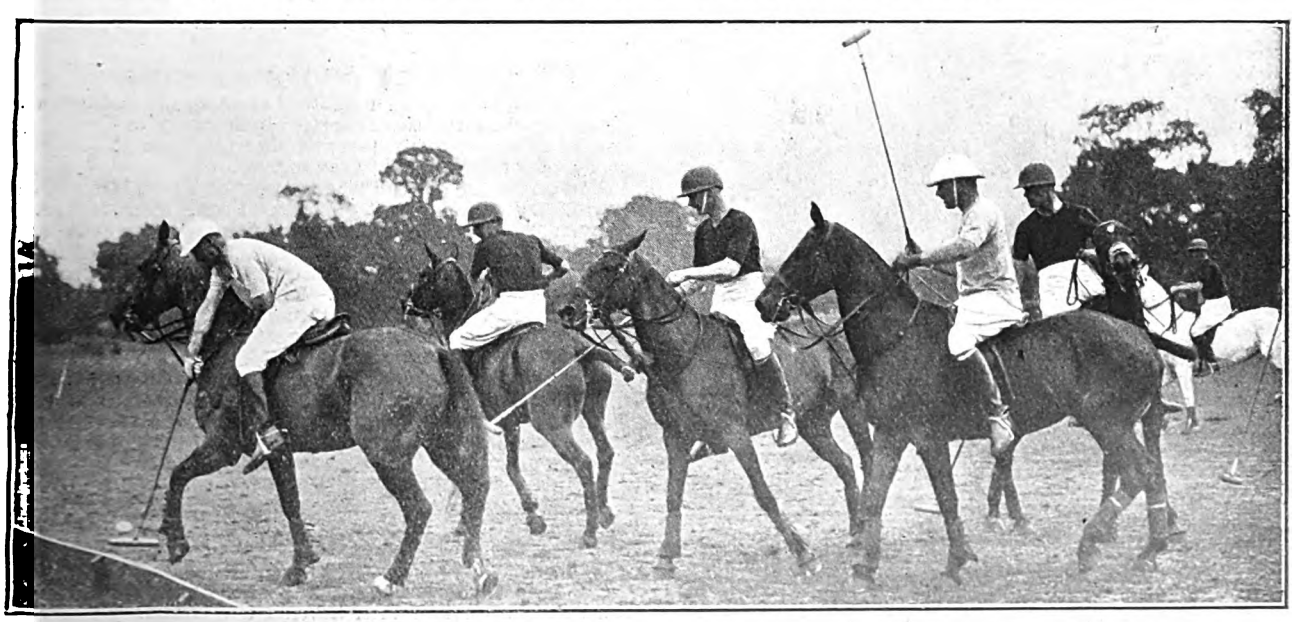
The Army had lost two wickets for 17 runs at the close of play on the second day and declared with 156 for four wickets at 13.20 hours on the third day. Mr. W. M. Leggatt made 76. The fielding of the R.A.F. was described by a spectator as being remarkably sound.

ROYAL AIR FORCE.

Flg. Off. E. C. Huddleston, c. Milbank, b. Burrows, 1; c. Burrows, b. Walford, 0.
Sq. Ldr. R. S. Sugden, c. Dynes, b. Walford, 0; l.-b.-w., b. Walford, 5.
Wing Cdr. C. H. B. Blount, c. Wilkinson, b. Walford, 4; b. Dynes, 110.
Flg. Off. A. J. Holmes, c. Burrows, b. Dynes, 30; c. E. Williams, b. Burrows, 21.
Sjt. Jennings, b. Walford, 1; b. Arnold, 9.
Flg. Off. N. M. Jerram, not out, 43; c. Burrows, b. Dynes, 35.
Sq. Ldr. B. E. Baker, c. and b. Dynes, 0; st. E. Williams, b. Dynes, 43.
Sq. Ldr. R. E. G. Fulljames, c. Walford, b. Milbank, 17; b. Dynes, 1.
Flt. Lt. V. Croome, c. Wilkinson, b. Walford, 0; b. Arnold, 20.
Flt. Lt. C. D. Adams, c. Leggatt, b. Walford, 11; not out, 46.
Sq. Ldr. C. B. Cooke, b. Walford, 10; run out, 20.
Extras, 1 and 26.
Totals, 118 and 336.

ARMY.

Capt. A. C. Wilkinson, b. Fulljames, 35; not out, 36.
Lt. F. D. Dynes, c. Jerram, b. Fulljames, 10; c. Croome, b. Crooke, 4.
Capt. E. S. B. Williams, c. Blount, b. Fulljames, 20; b. Adams, 15.
Sec.-Lt. C. C. Garthwaite, l.-b.-w., b. Fulljames, 0; b. Fulljames, 7.
Lt. W. M. Leggatt, b. Fulljames, 46; b. Blount, 76.
Lt. L. Williams, b. Cooke, 107; not out, 10.
Capt. J. E. S. Walford, b. Fulljames, 15.
Capt. M. B. Burrows, b. Cooke, 32.
Lt. M. V. Milbank, b. Adams, 1.
Capt. F. G. Arnold, c. Croome, b. Blount, 15.
Capt. F. E. Hugonin, not out, 3.
Extras, 18 and 8.
Totals, 302 and 156 for 4 wickets.



A NAVAL OCCASION.—The annual Polo match between the R.N. and the R.A.F. for the Duke of York's Trophy. The Navy won by 10 goals to 6½.

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A TRIUMPH FOR BRITISH WORK.

Last year the French bought a Calcutta (three Bristol Jupiter engines) of the civil type from Short Brothers of Rochester. This machine was flown down to the Mediterranean where it has been put through numerous tests. Recently it was used to transport M. Laurent Eynac, the French Air Minister, between Algiers and Oran.

The net result of all this is that the French Government has ordered two further Calcuttas. These will be of the Service type and will be built by the firm of Louis Breguet in France under an arrangement with Short Brothers (Rochester and Bedford) Ltd. The engines will be French-built Jupiters.

This is a tremendous feather in the cap of Short Brothers and through them a striking tribute to the British Aircraft Industry. Perhaps the most amazing thing about the whole business is the eulogy of the Calcutta which appeared in the well-known French aeronautical paper *Les Ailes* for July 3. The article is headed *Le Client est Roi,* which might be loosely translated into "Make What the Customer Wants." It reads as follows:—

It is certainly not a bad thing that our Naval Aviation Service has insisted on a small order for British flying-boats of the Short type. This is by way of a bomb-shell and has drawn attention to several points which too often are left in the shade.

I do not wish to begin again a discussion of the relative merits of English and French flying-boats of the same class. Our machines have their features, as I pointed out the other week. But there is one fact which cannot be denied and that is that our naval aviators after having seen the English trimotor fly and manœuvre and after having had one in service for several months could only be satisfied by the promise of more machines of the same class.

Let us try to draw a conclusion.

Are our constructors incapable of doing as well as the English? I am sure that this is not the case. And it is not too much to hope that they will find from foreign machines, bought in this way, enough stimulus and valuable information to enable them in the end to go one better than the English in certain features.

What are these features? They are very outstanding.

The use of metal hulls; the seaworthy qualities of these hulls (of very blunt shape); the arrangement of the wing engines which makes for manœuvrability on the water and ease of entry and exit to harbours; and comfort which is very carefully studied (this quality is important even for military uses although to a lesser degree). Lastly, and what perhaps impressed our officers most, there is the *irreproachable quality* of the English material, not only for the strength of the general structure, but the detail finish as exemplified in the engine cowling, the fuel and oil systems, etc.

There is no miracle about this, only a perfect technical control (we hasten to add that this is shown in the price, for the Short costs three times as much as its French competitor).

THE PROTOTYPE. — A Short Calcutta (Bristol Jupiters) belonging to Imperial Airways Ltd.

One must put oneself in the place of the naval aviators. They were rather in the position of Madame Bovary—obliged to content themselves with what they had, in dreaming of other things. They had the promise of the famous prototype which was going to be produced one day, though this had been going to happen for nearly ten years. Thus, when they are faced with an actuality like the Short their reaction is natural.

But my comparison with Madame Bovary will not perhaps please them overmuch. Because they knew very well what they wanted, but could not get it. They would be given machines decorated with undoubted technical qualities and about which we were boasting the other day, but which lacked too often two things: seaworthiness and a good finish.

We must insist on these points and define them better, because these are the qualities which are most appreciated by the operators of the aircraft and sometimes by them alone. As the French ignore the Navy so do our flying people ignore the flying-boat. A machine which takes-off on the Seine and a machine which takes-off in the open sea are two very different things. But Paris is on the Seine and that is why for the last ten years we have so often and repeatedly made the same structural errors.

On the other hand the English have the sea-sense, and one must believe that they make use of it, for they have given bluff bows to the hulls of their flying-boats. This gives a take-off with load of 18 seconds and that without porpoising or intervention from the pilot. Waves three feet in height are hardly noticed by the passengers.

Let us continue with our consideration of the most important of the desirable qualities for flying-boats.

These must be able to take-off in an average sea (waves up to two metres) and to alight under similar conditions without straining the structure.

They must be able to take-off in a short distance (to take advantage of restricted sheets of water).

Behaviour on the water either under control or in tow.

Ease of handling on the water.

As for the finish, it is necessary to have struggled under service conditions with fuel and oil systems which break or block themselves up, with starters which will not work, with hulls that leak, to appreciate the joy, the happiness, the light-heartedness, which a naval aviator feels with a machine which at the end of six months' service and 130 hours flying-time always starts at the word "go"; never has any trouble with the cooling, fuel or oil systems, or the sparking plugs,—which have been the same since the start.

Lastly, I do not deal with the military qualities proper because obviously of these military headquarters alone can judge correctly.

WHAT THEY SAY IN FRANCE.

The following has been extracted from the French weekly *La Semaine Militaire*:—

There has been some disagreement at the (French) Air Ministry lately. M. Caquot, the Technical Director, has been making a stand against certain big constructors who do not seek to develop their own industry and who wish to introduce foreign aircraft into France. Among these constructors is M. Breguet.

M. Breguet wishes to buy from England the licence for Short flying-boats, so that he may sell them in France.

M. Caquot opposes this.

However, during his tour in Algeria M. Laurent-Eynac flew from Algiers to Oran in a Short flying-boat which had been bought in England for test purposes.

Rumour now has it that M. Breguet has got the necessary authority for getting the licence.

Is there any connection between this happening and the trip of M. Laurent-Eynac? Would M. Breguet alone have been able to carry his point against the Technical Director of the Air Ministry?

THE 1930 COUPE MICHELIN.

M. Detroyat, the chief pilot of the Morane-Saulnier Company has won the 1930 Coupé Michelin by covering a circuit of France with 15 intermediate landings at an average speed of 199.98 km.p.h. (120 m.p.h.).

The circuit of France was by way of Paris, Reims, Strasbourg, Dijon, Clermont-Ferrand, Lyon, Montpellier, Perpignan, Toulouse, Pau, Bordeaux, Angers, Avord, Tours and back to Paris, a total distance of 2,831 kms. (1,800 miles).

M. Detroyat was flying a Morane-Saulnier 230 monoplane (230 h.p. Salmson engine). This machine was perfectly standard except for the suppression of the passenger seat and the addition of a further petrol tank in its place.

Other attempts were made by M. Haegelen in a Hanriot monoplane (230 h.p. Lorraine radial engine), and M. Paillard in a Bernard monoplane (230 h.p. Lorraine radial engine). Both these machines were specially conceived for the contest and were ultra-streamlined racing monoplanes. M. Haegelen landed in long grass at Reims and turned over and M. Paillard was forced down at Lyon with oil trouble.

M. Detroyat also won the 1929 Coupé Michelin at an average speed of 190.23 km.p.h. (114 m.p.h.).

A CANADIAN FATALITY.

On June 30 Major John O. Leach, Assistant Director of the Ontario Provincial Air Service, was instantly killed when the seaplane which he was piloting fell into the harbour at Port Arthur on Lake Superior. Major Leach lost his right leg during the War after an encounter with Baron Manfred von Richthofen, the deadliest of German fighting pilots.

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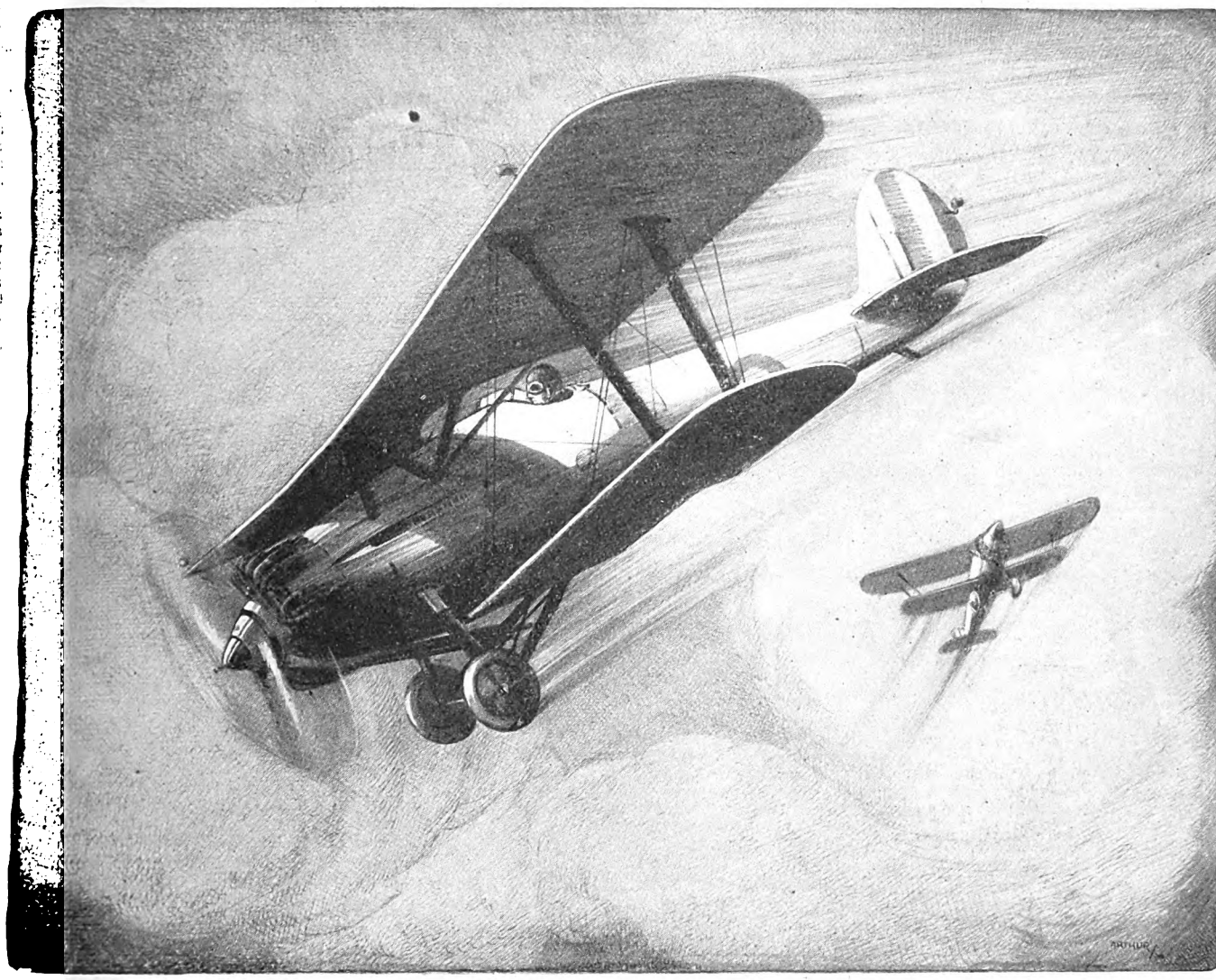

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F. P. Chalmers, flying his Moth G-AAYY fitted with a Gipsy II engine, experienced a small fractured oil pipe. Any possible recurrence of this trouble has been obviated for all time by the introduction of a modification.

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Moth—129.7 m.p.h. Second, Mrs. A. S. Butler—Gipsy III Puss Moth—129.6 m.p.h.
y III Puss Moth—128.3 m.p.h. Fourth, Lieut. Commander Kidston—Gipsy III
tain C. D. Barnard (with three occupants)—Gipsy III Puss Moth—127.6 m.p.h.

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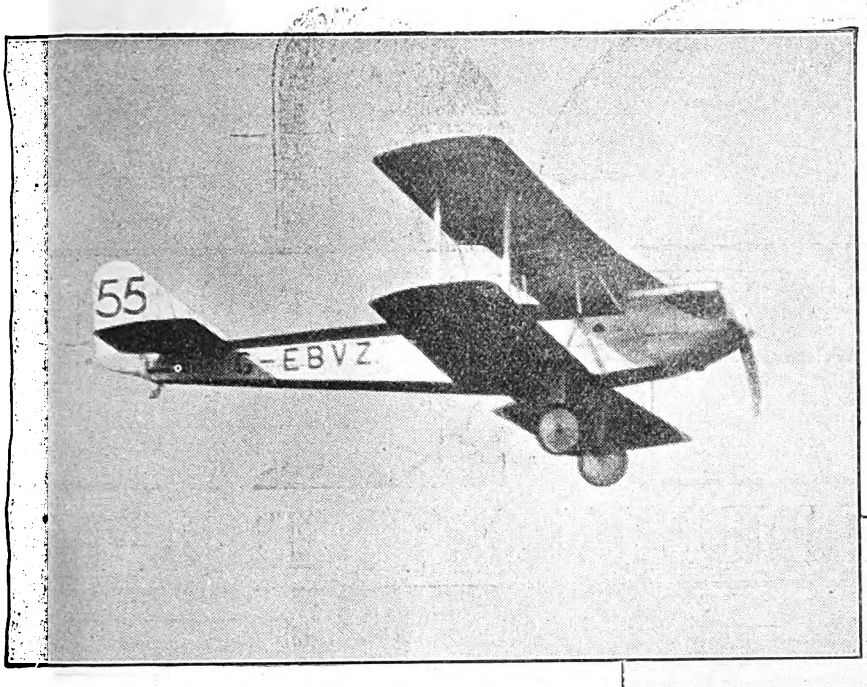

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THE WINNER

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KING'S CUP AND THE SIDDELEY TROPHY

MISS WINIFRED BROWN flying an Avro Avian, fitted with the Cirrus III engine, beat 85 competitors in the greatest air race of the year at an average speed of 102.7 miles per hour.

The average speed of the Avro Avian, fitted with Genet Major engine, that gained 5th place was 106.4 miles per hour. And another Avro Avian with Cirrus III engine was placed 8th.

The prices of the Avro Avian in England are from £575.

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1st Miss W. S. BROWN (AVRO AVIAN CIRRUS III) AND THE SIDDELEY TROPHY

2nd Mr. A. S. BUTLER (D.H. MOTH GIPSY II)

3rd Flight-Lt. WAGHORN (BLACKBURN BLUEBIRD GIPSY I)

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THE LIGHT AEROPLANE
AND THE FLYING CLUBS.

TEST FLIGHTS OF MODERN LIGHT AIRCRAFT.—IV.
THE D.H. PUSS MOTH.

BY CHRISTOPHER CLARKSON.

The D.H. Puss Moth is a braced high-wing cabin monoplane, with the 120 h.p. Gipsy III inverted engine. The pilot sits in front, with one passenger normally directly behind him. A third occupant can sit on a folding seat behind, and staggered with, the other passenger's seat. To facilitate this, the dual control is easily removable and the passenger's seat behind the pilot slides to one side which gives the third person plenty of leg-room and a good view.

The fuselage is of welded steel built in sections and bolted together which makes replacement of a damaged section a comparatively simple matter. The wings are of wood, and fold back along the fuselage. D.H. differential ailerons are fitted and the machine has an adjustible tailplane, worked by a "cheese-cutter" on the left of the pilot's seat.

Full details of the engine and machine have already appeared in THE AEROPLANE for April 2, 1930.

There is always one thing about flying a product of the De Havilland Company,—one knows that the machine is as nearly right as experience can make it. There will be no teething troubles to compete with—every feature, detail and control will have been thoroughly tried out before the machine comes on the market, and one can rely on the fact that the total flying experience of a large number of people has made the machine as nearly perfect as possible. In other words, after a fairly long air test of the Puss Moth —under varying conditions and with various loads—there does not seem to be any main point which can be criticised.

As was found when testing the Moth biplanes—the guaranteed performance is actually less than the performance shown by the instruments when flying the machine. The average speed on a cross-country flight showed that the Air Speed Indicator was, if anything, on the pessimistic side. All the following figures were obtained with a full load—that is with three people and coats. The machine flown was one which had had hard usage before one flew it, and it had been used as a demonstration machine. The performance put up was therefore all the more creditable.

The take-off is quick, and once off the ground the machine climbs fast. The climb was 900 feet in the first minute, and 2,000 feet was reached in 2 minutes 20 seconds, and 3,000 feet in 3 minutes 35 seconds.

The top speed is high. The Air Speed Indicator showed a reading of 128 at full throttle. This speed is rather remarkable for an engine of 120 h.p., with a load of approximately 1,850 lbs. gross.

The touring speed at 2,000 r.p.m. was 108 m.p.h., and one can always be sure of an air speed of over 100 m.p.h. as the Gipsy III engine is designed to run between 1,950 and 2,000 r.p.m. Such a speed puts this machine in a class by itself as a commercial proposition.

In the air the controls are very effective and are evenly balanced in their relation to one another. For civil aviation they are light enough, and as a combination they are as near perfect as any civil machine yet flown.

They are progressive in feel as the speed increases, and at high speeds although they increase in resistance they are not too sensitive. At very low speeds the rudder and elevator disappear first, leaving the lateral control efficient almost up to the point of stall. Owing to the D.H. differential control aileron drag is not apparent at any time.

The stalling and spinning habits of this machine are good. In a straight-forward stall, either with engine on or off, the nose sinks slowly away and flying speed is soon regained.

If the machine is stalled on a climbing turn—even with plenty of bottom rudder and the stick back—the nose drops rather rapidly away as though the machine were about to spin, but, just as one thinks that it is going to start, the outer wing drops and the machine assumes a gentle dive from which it can be eased out without undue loss of height.

An intentional spin was not indulged in, more out of consideration for one's passengers than anything else. It might be that the machine would spin more easily if forced in with only a pilot and one passenger, but its natural inclinations are towards considerable stability.

The glide of the machine is extremely flat—owing to its general efficiency and its good streamlining—and in consequence the manufacturers have invented an air brake, which is carried on the compression struts of the undercarriage.

These struts extend from the top of the fuselage to the wheels and have streamline section casings. When a lever in the cockpit is pulled back, these casings are turned through an angle of 90 degrees ,and thus present their maximum area, which represents roughly 2 square feet, broadside on to the air flow. The gliding angle is thereby increased from about 1 in 11 to approximately 1 in 7.

In action these are most efficient and amusing to use and are an absolute "Rumbler's" joy. Without their use one is almost sure to overshoot, and have difficulty in getting the machine down owing to its "float." Directly one is anything like in position one pulls them round and steepens up the glide. If one undershoots—which on this machine is very unlikely—one takes them off and is soon in a position to put them on again.

If they are put on when flying the speed is reduced by about 30 miles an hour, so that some idea of their efficiency may be realised. The machine sideslips well with the brakes either on or off.

The machine is easy to land. The tail incidence gear is efficient at all the different loads, and, although the gliding speed was between 55 and 60 m.p.h., the machine appeared to go onto the ground about 47 m.p.h.

The run after landing was not excessive—one would judge it to be about the same as that of a Gipsy-Moth, but wheel brakes would be a useful addition, and would help one to taxy in confined spaces. Actually taxying is quite easy, but there is a lot of weight on the tail, and it is best to ease the stick forward slightly when turning. The tail can be lifted round by one person, but it is rather too heavy for anybody who is not fairly strong.

As regards comfort the machine may be described as exceptional—and although one did not sit in the passenger's seats, one was assured that they were really very comfortable indeed. Even the occasional seat is superior to the normal cockpit.

AN EMIGRANT.—The first Puss-Moth to arrive in Canada. This machine, flown by Mr. Geoffrey O'Brien and Mr. George Mickleborough, recently flew from Toronto to Winnipeg, a distance of 1,400 miles, in one day.

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The controls are well-placed. The instrument-board is neat, with everything easy to see, and an extra map space with clips is provided on the lower half of it. This lower half opens and can be used as a compartment for maps, gloves and other small articles.

A turn-indicator and compass are both included in the standard equipment.

The engine is very smooth, and there is a notable absence of vibration at all speeds.

The amount of noise in the cabin with the windows shut is very small and conversation is easy. But with the windows open this becomes rather excessive.

The point is that one must have air—in the Summer particularly—and one also flies in an ordinary hat, without a helmet to drown any noise. The result is that after an hour or so with the window open one has had enough.

Whether this is engine noise, airscrew noise, or just the roar of the air round the cabin one would not like to say, although one suspects the last two causes. A great deal of improvement is necessary on all makes of cabin machines before they are really comfortable with the windows open.

In the Puss-Moth the windows slide open on each side of the pilot and one would like to see two more, one on each side of the passengers, as they require them as much as, if not more than, the pilot, and to have them open at the back, with the front one closed, might help with the problem of noise.

Also something should be devised so that the pilot can see more ahead in the event of ice forming on the front portions of the screen.

The view, ahead, downwards and on either side, is remarkably good and windows in the roof enable one to get a look round before taking off, and after landing before taxying in.

On a turn one can lift the wing to see up and behind one before actually beginning to turn, and once in, if the angle of bank is moderately steep, one can see well through the roof. This view is as good as can be hoped for with a machine of the "high wing" type. [Which is why one wants to see a "middle wing" tried.—C. G. G.]

The accessibility is good, the cowling is easily removable and all the working parts can be got at easily. The maintenance should be much the same as with a Gipsy Moth, and the De Havilland facilities for spares and service are too well-known to be repeated again. To say that they are the same for the Puss Moth as they are for the other Moths is enough.

The only suggestions which occur to one are the addition of wheel brakes and the addition of windows to open beside the passengers. A half-way catch on all windows would be an advantage, as at present they are either open wide or completely shut.

The question of windows giving a forward view, for use if bad weather should prevent one seeing through them—or the alternative of some method of clearing them of ice and snow—is one which will have to be tackled by all designers of cabin machines where the pilot is all enclosed.

One's own opinion is that screen wipers or hot air draughts will be useless and that windows which open will be the only solution. Actually during the test flights the weather was perfect and one enjoyed flying the machine tremendously. The makers' specification and price are given hereafter:—

LANDPLANE.

Weights (Approximate).

	With 22 gall. tankage.	With 35 gall. tankage.
Tare weight	1,170-1,200 lbs.	1,180-1,210 lbs.
Petrol	163 lbs.	259 lbs.
Oil (1¾ galls.)	17 lbs.	17 lbs.
Pilot	165 lbs.	165 lbs.
Useful load	385-355 lbs.	279-249 lbs.
	1,900 lbs.	1,900 lbs.

Performance (Approximate).

	Pilot, passenger and 22 gallons (laden to 1 680 lbs.).	Maximum total weight (1,900 lbs.).
Max. speed at ground level	128 m.p.h.	127 m.p.h.
Max. speed at 5,000 ft	125 m.p.h.	123 m.p.h.
Rate of Climb at Ground level	825 ft./min.	630 ft./min.
Time to climb to 5,000 ft.	7 mins.	10 mins.
Time to climb to 10,000 ft.	18 mins.	25 mins.
Absolute ceiling	19,000 ft.	16,500 ft.
Stalling speed	42 m.p.h.	44 m.p.h.

Ultimate Range in Still Air, Cruising at 105 m.p.h.

With 22 galls.	460 miles.
With 28½ galls.	600 miles.
With 35 galls.	730 miles.

Price: £1,000 ex Works unpacked.

THE AIR RALLYE AT OSTENDE.

BY COL. THE MASTER OF SEMPILL.

On Sunday, June 29, I thought it would be interesting to fly over to Ostende to attend the Air Rallye that had been organised for that and the previous day. The Customs Officer had very kindly appeared at Heston before his usual time, which enabled one to make an early start. As is often the case, however, "the more haste the less speed," for I had not been in the air more than ten minutes when I noticed a trail of mist floating out behind the machine and discovered that the cap of the petrol tank had come off. This necessitated a landing at Croydon to obtain another cap and some more petrol, which, of course, meant a certain delay. In due course everything was in order, and in a little over an hour and a half Ostende had been reached.

The aerodrome there is of a fair size but rather rough on the surface. This slight defect, however, was easily made up for by the extraordinary kindness and helpfulness of the entire staff, who could not do enough for the visitors.

A number of machines had already turned up, including a Breda from Heston, and various others from France and different parts of Belgium. The new Farman cabin monoplane looked particularly attractive.

On the ground there were also two Handley-Page machines, looking very spick-and-span in spite of their many years of service in the Sabena.

The Bluebird aroused a great deal of interest, primarily because it was the only side-by-side two-seater machine there, and there is no doubt that this particular feature does appeal to people quite considerably.

Having to return to Folkestone to see Herr Kronfeld, who was giving some soaring flight demonstrations, I left Ostende at 3 o'clock, bringing back as passenger Miss Lippens, the daughter of the Belgian Air Minister, and one of the only two—or three at the most—ladies in the World who have qualified for their "C" certificate for soaring flight.

The visibility was exceptionally good. It was possible to see at least 50 miles inland and to pick out in Belgium and Northern France the various points that were so well known in the war. Therein came the advantage of side-by-side seating, as my passenger with a map was able to point out a great number of places of interest with which I was not familiar.

On the way across the Channel we passed a Sabena Fokker, evidently bound for Brussels.

A landing was made at Lympne to complete the necessary Customs formalities and then, after a refreshing cup of tea with Commander Deacon, the officer in charge, we went on and landed in a small hayfield just at the back of Folkestone and immediately behind the starting-point for Herr Kronfeld's soaring flights.

The only other incident of the day, apart from a very pleasant flight in the evening back to Heston, was the fact that one of the many spectators on the landing-field took a particular fancy to my watch.

[N.B.—The said wrist-watch was left in the machine. Presumably the abstracter is not a reader of THE AEROPLANE, but if he is, may his conscience smite him, and may he hereby be induced to return the stolen goods.—C. G. G.]

THE HOOK AND MATTHEWS FLIGHT.

Search continued all last week for Mr. Hook and Mr. Matthews, who disappeared soon after leaving Akyab on July 3, when flying to Australia in a Gipsy Moth.

The country about Taungup, where they were supposed to have been forced down, was flooded, and this made search by aeroplanes dangerous as well as making immediate help impossible if the lost men should be sighted.

Supermarine Southamptons (Two Napier Lions) of No. 205 (Flying Boat) Squadron, R.A.F., had been ordered out from Singapore to join the search. The Squadron is commanded by Sq. Ldr. G. E. Livock, D.F.C., A.F.C.

A dispatch from Rangoon in *The Times* of July 11 says that the Deputy Commissioner of Sandoway had reports of the Moth being sighted on July 3. It was seen flying over the village of Palawa, evidently in difficulties, and making for the Taungup Pass in the direction of Prome, a township where efficient help might have been available.

Mr. F. P. Raynham, senior pilot of the Indian Air Survey Company, left Calcutta on July 11, to join in the hunt, according to the correspondent of *The Morning Post*.

The Sunday papers of July 13 reported that Mr. Matthews arrived at Prome on July 11, to get help for Mr. Hook who was in a dying condition.

A LUCKY ESCAPE.

More or less everybody has known that Sq. Ldr. C. S. Wynne-Eyton, D.S.O., was going to try and fly the Atlantic alone in a D.H. Puss-Moth. On July 6 he left Lister's Field, St. Johns, Newfoundland, for Harbour Grace, whence he proposed to take off. Hardly had the machine taken off when it crashed and caught fire. Sq. Ldr. Wynne-Eyton was dragged from the wreckage by onlookers and taken to hospital. His injuries are not reported as serious.

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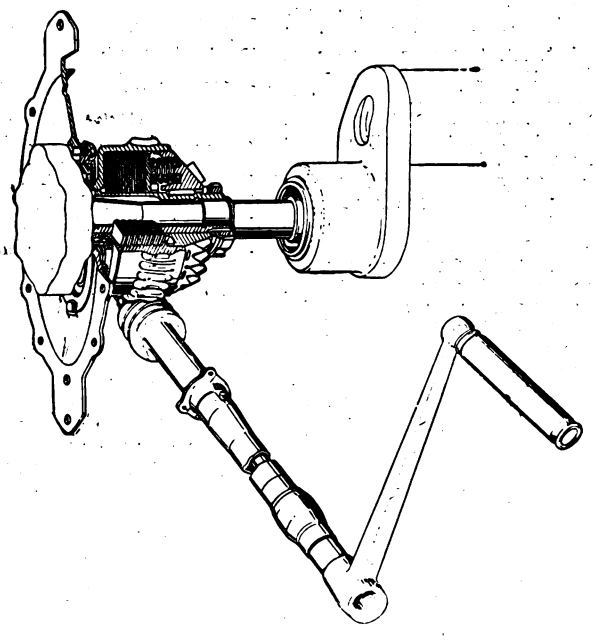

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THE SHERBURN MEETING.

On July 13 the Yorkshire Air Race, for the silver cup given by Lord Brotherton of Wakefield, President of the Yorkshire Aeroplane Club, was run off over a course of 84 miles from Sherburn-in-Elmet and won by Mr. J. D. Irving, of Newcastle, in his Gipsy-Moth. The course took the competitors round the triangle Sherburn—Brough—Hedon—Sherburn, and good handicapping brought all twelve entries over the line within a minute or so of each other.

The winner averaged 112 m.p.h. in the specially streamlined Moth which he flew in the King's Cup Race, and passed the field from scratch. Flt. Lt. Thomas Rose was second in his very streamlined King's Cup Bluebird with an average of 110 m.p.h.; and Mr. H. P. Wilson, flying a Spartan (Hermes) belonging to the Hampshire Aero Club, came third with a speed of 99 m.p.h. Bad visibility on the outward leg slowed up the race very slightly.

A large crowd witnessed the race and the flying fête which followed it. A generous sprinkling of visiting machines turned up and joined in the various competitions. In the aerobatic contest each entrant chose his own special evolution, and Mr. G. S. Green won with a series of artistic slow rolls on an Avian (Genet-Major).

The spectacular side of the afternoon was supplied by Mr. H. S. Broad in his inverted-flying Moth (Gipsy) G-AALT, Mr. H. M. Schofield in the Desoutter (Hermes), who also did some crazy-flying in a Moth. Flg. Off. Love demonstrated air attack by diving on a property oil tank with machine-gun, and finally with bombs, and Mr. John Tranum did a parachute drop. Passenger flying went on until dusk.

Among the visitors by air were Miss Winifred Brown, winner of the King's Cup, who flew over from Manchester, and Miss Susan Slade, from Heston.

SCOOPING THE POOL.

The Auckland Aero Club of New Zealand held a Pageant on April 12 last. There were 21 entrants in seven different types of aircraft for the four competition events. There were two landing competitions, the New Zealand Aerial Derby, and *The New Zealand Herald* Inter-Club Challenge Trophy Race. In all these four events Gipsy Moths were first and second. The Gipsies, one might say, made a clean sweep.

THE BROOKLANDS AERO CLUB.

The Brooklands Aero Club was founded less than two months ago and the membership is already approaching 100. Flying members have the use of a new metal Gipsy-Moth, which is used for solo flying only, at the very reasonable rate of £2 per hour. If non-flying members wish for instruction they take it at the Brooklands School of Flying.

A club-house will shortly be opened on the aerodrome, which will be reserved exclusively for members and their guests. Refreshments will be served during certain hours. The club is open, Mondays excepted, from 10 a.m. to 10 p.m.

Subscription rates are as follows:—

Existing B.A.R.C. Members.—£1 1s. No entrance fee.

Full B.A.R.C. Membership with flying facilities.—Subscription £6 6s., entrance fee £5 5s., or subscription £7 7s., no entrance fee.

Flying Members.—Subscription £4 4s., entrance fee £3 3s. Membership carries full use of B.A.R.C. premises, also aerodrome club-house (when open). Entrance to Brooklands with car on race days included. Passengers to be paid for at ordinary rates. No ladies' badges. Use of Track excluded.

Associate Members.—Subscription £1 1s. Entrance fee 5s. Full use of B.A.R.C. premises, also aerodrome club-house (when open). This membership is solely for applicants who are members of recognised Light Aeroplane Clubs, private owners, or commercial pilots. Full payment of ordinary fees if entrance to track is made by road on Race Days.

A CLUB HOUSE FOR BLACKPOOL.

The Blackpool Town Council recently referred to a special meeting of the General Purposes Committee the proposal to build a club house on the aerodrome at a cost of £3,000. The expenditure was sanctioned by the Committee.

The club house and hangar will be leased to National Flying Services for seven years for a sum representing four per cent. on capital cost, with an extra sum for aerodrome rent and percentage from charter and taxi flight earnings.

THE POINT OF VIEW.

Overheard in the Club.

The Novice:—"I suppose it is always wisest to wear a parachute in a Moth."

The Veteran:—"If you are the sort of chap who would wear water-wings on the *Berengaria*—yes."

[All the same the Moth is designed to accommodate a parachute.—ED.]

LEICESTER PROGRESS.

The Leicestershire Aero Club is now the largest in the provinces as it has 700 members of whom 94 are pilots. One of the most recent and very distinguished additions is His Royal Highness the Duke of Gloucester who accepted a membership badge on the occasion of his landing at Desford to open the Agricultural Show.

All members of the Club are honorary members of the Northamptonshire Aero Club as well, which privilege is reciprocated.

A regular and popular feature of the Club amenities at Desford is the excellent tea which the Ladies' Committee provide to members for a shilling.

CINQUE PORTS PROFITS.

The Cinque Ports Flying Club recently issued its Balance Sheet, which shows the Club to be in a very healthy state. After taking in the Air Ministry subsidy of £1,115, the Club shows a profit of £291, which means that, apart from the subsidy, it has run at a net loss of only £800 for the year.

One rather interesting item in the Balance Sheet is the receipt of £49 16s. 1d. at the bar. Evidently the members of the Club are not heavy drinkers, which probably accounts for their being such good fliers. Thus they would appear to belie the nickname of The Port Sinkers' Club, instead of the Cinque Ports Club, which some wag bestowed on them.

Another interesting fact disclosed is that there was a loss of £250 over the Easter Meeting in 1929. This is rather complicated, because the first day's receipts for this meeting came into the previous year's accounts, whereas the loss shown this year represents the whole expenses of the meeting less the receipts for the second day.

TORONTO TO WINNIPEG IN ONE DAY.

For the first time the 1,400 miles between Toronto and Winnipeg have been flown in one day. The trip was made in a D.H. Puss Moth flown by Mr. Geoffrey O'Brien and George Mickleborough, who took fourteen and a half flying hours on the way and stopped at Detroit, Chicago, Madison, St. Paul, Fargo and Grand Forks. The only approach to trouble on the way was a head wind up the Mississippi valley.

The direct route between the two Canadian cities, which would be about 1,000 miles by air, is impracticable for single-engined aircraft as it lies almost wholly over Lake Huron, Lake Superior, and country covered with small lakes and forest.

THE HANWORTH AIR FETE.

On July 19 there will be held at Hanworth an Aerial Fête to help Mrs. Stanley Baldwin's appeal, in conjunction with the National Birthday Trust Fund for the Extension of Maternity Services. Why Aviation should be brought into the campaign is not explained.

One of the events will be a Dominions Race. Sq. Ldr. G. Jones, D.F.C., will represent Australia, Sq. Ldr. A. B. Shearer, R.C.A.F., Canadian Liaison Officer at the Air Ministry, will represent Canada, and Capt. R. Douglas, of the Johannesburg Light Plane Club, will represent South Africa. These pilots are expected also to compete in the open speed race over a two-lap course to Reading and Farnborough and back to Hanworth.

Silver cups and cash prizes to the total value of nearly £400 have been presented for these and other events by the Marchioness Cholmondeley, Lady George Cholmondeley, Lady Bearsted and Mrs. Corning, the Duke of Sutherland, Sir Philip Sassoon, Bt., M.P., Capt. Sir Wm. Brass, M.P., Sir Julian Cahn, Sir Albert Bingham, and Sir Edward Stern.

THE ANNUAL PARTY AT NORWICH.

On July 26 the Norfolk and Norwich Aero Club will hold their annual display. The Rally Competition has its zero hour set for 12.30 hours, but flying will be practically continuous from 10.30 hours onwards. The main trophy for the Rally is a cup, and there will also be second and third prizes.

The day's sport will finish up with a grand dance at the Aerodrome, and on Sunday there will be a garden party in the afternoon beginning at 14.30 hours with flying competitions as a feature.

THE BRISTOL AIR GARDEN PARTY.

The Bristol and Wessex Aeroplane Club have fixed on Sept. 6 as the date on which they will hold their Annual Air Garden Party. On this date the members of the British Association for the Advancement of Science will be entertained at the Bristol Municipal Airport.

A GROUND COURSE AT BROOKLANDS.

The Directors of the Brooklands School of Flying announce a course in aircraft and engine maintenance, to start on Aug. 5 under a fully qualified lecturer and ground engineer. The full course will last ten days, and the fee will depend on the amount of support from private owners and other interested parties.

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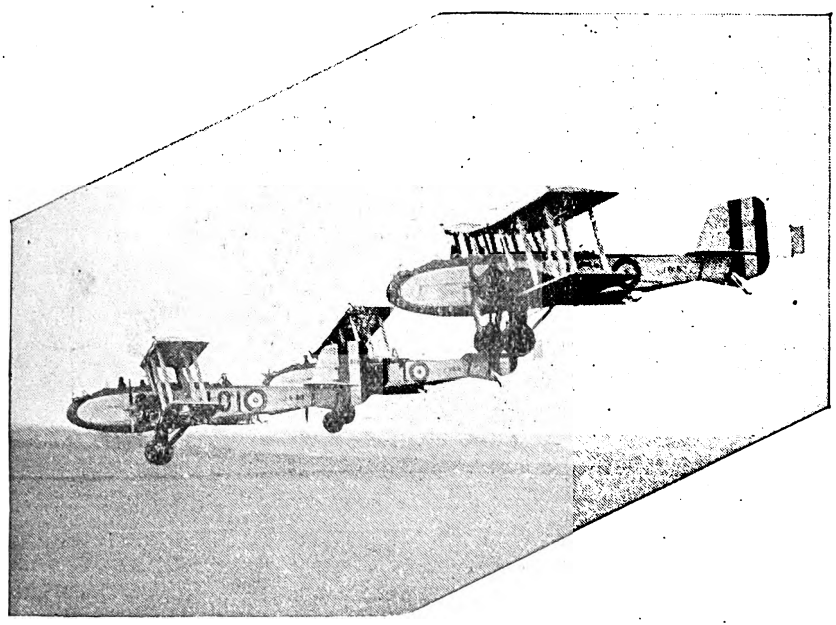
ALL-METAL AIRCRAFT



By courtesy of "The Aeroplane."

The Boulton & Paul System of Metal Construction

THE Boulton & Paul "Sidestrand" day Bomber combines the qualit es of rapid climb, high speed at altitude, and load-carrying capacity with the ease of control which alone will permit of close formation flying. The combination of these qualities calls for efficient structural as well as aerodynamic design.

The "Sidestrand's" performance is thus a tr.bute to the virtues of the Boulton & Paul system of metal construction.

Those who contemplate embarking on all-metal aircraft design can obtain full parti ulars of the available sections and their characteristics upon application.

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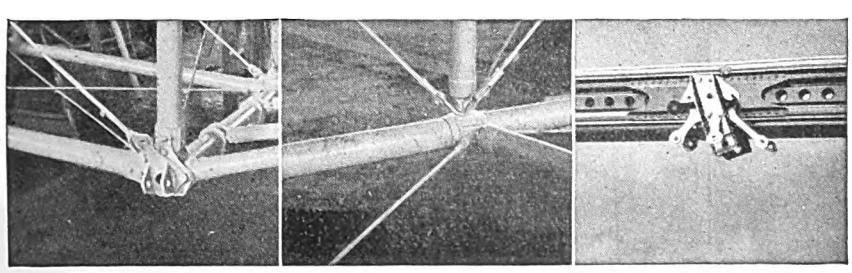

Typical details of the BOULTON and PAUL "Sidestrand." Left, fuselage and wing spar junction. Centre, a standard fuselage joint. Right, a wing spar joint for interplane struts and wires.

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"The Second WESSEX for SABENA"

BRITISH AIRCRAFT for BELGIAN AIR LINES

THE

WESTLAND WESSEX

3-ENGINED 6-SEATER

(Armstrong - Siddeley Genet Major Engines)

After careful comparison with other types of passenger - carrying aircraft

FOUR **WESSEX** CABIN MONOPLANES

have been purchased by **SABENA** of Belgium, for use on their air routes.

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WESTLAND AIRCRAFT WORKS

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COMMERCIAL AERONAUTICS.

INTERESTING THE BUSINESS COMMUNITY.

On Sunday, July 13, The Leicestershire Aero Club held a select tea party to which were invited the merchant princes of Leicester and sundry proprietors of aircraft. The aircraft makers, agents or salesmen were asked as a purely business matter for their own benefit, and the aforesaid members of the Leicester Chamber of Commerce were present to see the aircraft fly, be shown round them and in them, to fly in them at a reasonable fee, and generally to become pleasantly intrigued with them. In short, Mr. W. Lindsay Everard, M.P., President of the Club, and the very wide-awake secretary, Mr. Harry Purt, who is also secretary of the Chamber of Commerce, inspired the idea of bringing Big Business and Aviation together over the traditional British teacup, in which are the germs of commercial conversations.

It was an artistic thought, and the arrangements carried exactly the right touch. The 1,700 members of the Chamber received their dignified invitation cards to Desford Aerodrome, and most of them seemed to have come with their families. Although it was not a public show an enclosure was open to all others interested at a very reasonable fee and a loud-speaker van gave them information.

Mr. Purt and Mr. R. C. Winn, Chairman of the Committee, received the guests, who included Mr. Frederick Pollard, President of the Chamber of Commerce, and Mrs. Pollard; Mr. W. F. Price, Vice-president, and Mrs. Price; Mr. F. H. Ragg, Honorary Treasurer, and Mrs. Ragg; and nearly all the members of the Council with their ladies. Whatever Leicester's business magnates think of aeroplanes as commercial vehicles there is little doubt about the progressive notions of their successors. The young of the species revolved round the machines and discussed their points with all the critical facility of experts.

Mr. W. Linday Everard also appeared as host, and when he was ready to come from Ratcliffe Hall his own Puss Moth went to get him. The representative of THE AEROPLANE went too, by the invitation of Mr. Stuart David, who is the official pilot of Mr. Everard's planes when the Aero Club is not using them.

The Leicestershire hunting country looks well from the air. The fields are small and well hedged, and the coppices lend variety. Ratcliffe Aerodrome, which has been prepared by Mr. Everard, lies about seven miles straight north of Leicester. From the air it presents an "L" shape of generous size, and a landing proves the excellence of the surface. Most of it has been levelled from the ridge-and-furrow condition, and now there is a clear and level run of about 600 yards on each of the wings. A brick building, 50 x 50 ft. is going up adjoining the farm house, and the stables are to be turned into another series of lock-ups.

On Ratcliffe Aerodrome we found the Cutty Sark, G—ABRC. The crew had landed it there and been taken to lunch with Mr. Everard, so the Puss Moth waited, and we inspected the buildings,—and the Cutty Sark. The latest version is very impressive.

In due course Mr. Everard brought back his guests, and as he wished to fly in the Cutty Sark and Sir Alliott Verdon-Roe was interested in the Puss Moth, they changed over and the formation of two set off for Desford. The others of the party were Mr. John Lord, of Saunders Roe, Ltd., Mr. Leslie Irvin, of parachute fame, and Mr. Leslie Scott, pilot for Saunders-Roe Ltd.

At Desford the machine park now held a Junkers Junior, G—AATH, brought up from Croydon by Mr. and Mrs. H. R. Trost, and a Bluebird, G—AAUT, flown from Brough by Mr. John Stockbridge. Mr. Marcus Hutchinson arrived soon after in a Lynx Avro. Incidentally, as it appeared in the distance, a guest with distinguished grey hairs asked what aeroplane it was. An efficient member of the Committee came affably to the rescue "Oh, that's an Avro. You can tell an Avro by, etc., etc., etc." Sir Alliott Verdon-Roe thanked him and looked enlightened.

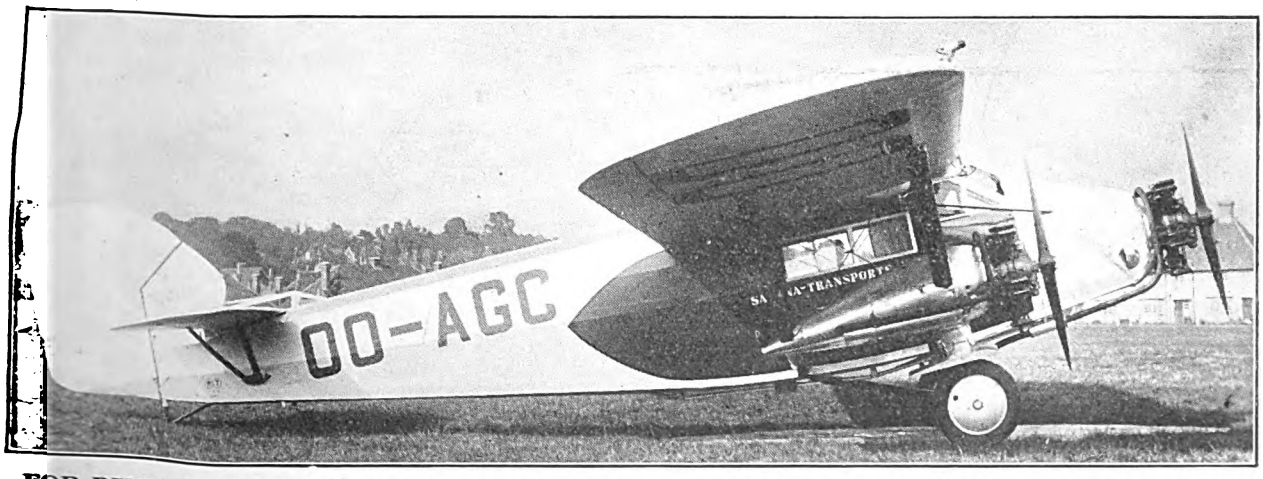
At that time the exhibition contained variety, if not quantity. Three Gipsy Moths, a Puss Moth, a Bluebird, a Lynx-Avro, a Cutty Sark and a Junkers Junior. The larger machines were quickly surrounded by inquiring throngs and duly shown off by their proprietors. So were the two-seaters, except when flying, and such was the enthusiasm of the Leicester Chamber of Commerce that they were only on the ground long enough to change passengers.

Later in the evening, before the excellent catering accommodation had finished coping with the demand for tea, Flt. Lt. Tommy Rose arrived with *éclat* from Leeds in the Avro Five. At his tail came Mr. Robinson in the Robinson Redwing, Mr. Broad in his aerobatic Gipsy-Moth, Miss Slade in her Gipsy-Moth, and Mr. Deterding from Northampton. It was Mr. Deterding's first cross-country flight.

From then on proceedings took a more spectacular turn. Mr. Broad flew upside down, and the Leicestershire Club formation gave a really fine display, with two Gipsy Moths formating on the Puss Moth. They finished with a Prince of Wales' feathers.

The success of the day may be gauged by the fact that several of the official guests, after taking their initial flights, expressed themselves as anxious to inquire more fully into possibilities, and twenty-five of them joined the Club. This, the first function of its kind, had that atmosphere which the Leicestershire Aero Club manages to get into all its parties. A larger attendance of commercial aircraft would have made it much better, both as an interesting afternoon, and as the first enlightened effort to get business men together in a social mood to see and discuss aeroplanes as something more than dangerous toys. The pity is that none of our new and truly commercial aeroplanes showed up.

Since the Club was sponsored two years ago by the Chamber of Commerce it has been well run, and supported as it deserved. The generosity of Mr. Lindsay Everard enables them to use his machines as they do their own, and to run a taxi service at sixpence a mile for anyone who wants to take advantage of it. The peculiarly fine harmony among its members and management is undoubtedly the reason why all its displays, pageants, meetings and gatherings have been immense popular successes. Manufacturers might be better off over the tea-cups of a Leicestershire Private View than trying to cultivate more arid regions.—F. D. B.



FOR BELGIUM.—The first of a batch of Westland Wessex six-seat cabin monoplanes (three Armstrong Siddeley Genet-Major engines) which has been bought by the Sabena Company, the premier air transport organisation in Belgium and the Belgian Congo.

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BRITISH AIRCRAFT FOR BELGIUM.

The Société Anonyme Belge d'Exploitation de la Navigation Aérienne (SABENA), or Belgian Air Lines, have acquired four Westland Wessex six-seat cabin monoplanes (three 105-110 h.p. Armstrong Siddeley Genet-Major engines).

The contract for these machines was won in the face of considerable competition from British and foreign manufacturers, all of whom were offering their aircraft at a lower figure than that which the Westland Company were prepared to accept.

On July 2 M. Cocquyt, of the Sabena Company, took over the first machine at Yeovil, and before leaving for Brussels he expressed his satisfaction with the machine and complimented the directors of the Westland Company on the way they had turned it out and modified it to suit Sabena requirements at very short notice. Mr. Gaunt, of the Westland Works Service Department, accompanied Mr. Cocquyt to Brussels to explain to the Sabena Engineering Department any technical points which might arise.

THE THURSTON ROTOR THUMB CONTROL.

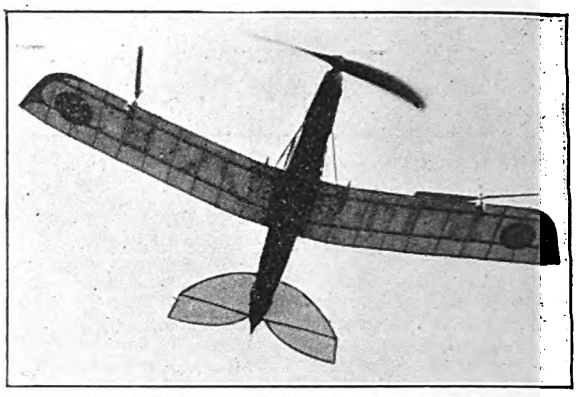
Certain criticisms about one's clumsiness as a child and remarks to the effect that "you are all thumbs" have resulted in a feeling that the possession of thumbs should be kept quiet and not shouted about. But Dr A. P. Thurston has discovered otherwise and asserts that without its thumbs, or what is left of them, the ordinary bird would be a poor flyer. As a result of his very lengthy observations of bird flight Dr. Thurston, even before the War, was led to make certain experiments with "rider" planes, which were auxiliary aerofoils placed in front and above the main wings.

Dr. Thurston is convinced that birds with their rudimentary thumb, or alula wing, can control the airflow over their wings and thus are able to fly and manœuvre in attitudes and at speeds which would otherwise prove impossible. He has made many experiments on these lines, with actual flying models as well as wind tunnel tests.

His latest development, which was mentioned tentatively in The Aeroplane some months ago, is a "rotary thumb." This is an airscrew which has its axis mounted just in front of the front spar. Dr. Thurston has found that these airscrews have two particular characteristics. First, that when the wing begins to stall the airscrew lifts on its spindle and then starts to swing forward into such a position that the airscrew acts as a "rider-plane" and directs the air across the top of the wing. Further, that the airscrew swings into such a position that the flow is so directed that all that portion of the wing stalls at the same angle

When the stalling angle has been passed the airscrews begin to rotate and soon get a very high lift. So much so that the machine can be flown very slowly or at very great angles. In the event of trouble Dr. Thurston states that the airscrews may be used to parachute the machine down safely.

Looked at from this point of view, the "rotary thumbs" appear to combine the principles of the slot and the autogiro, and one wonders how the position of this new idea is affected by the existence of these actualities,—or *vice-versa*.



A model flying with Thurston Rotors.

One has seen the models with which Dr. Thurston has been experimenting, and one was amazed at the beautiful workmanship of the small parts. In fact, actual inspection at once removed all one's ideas about the difficulty of getting an airscrew to sit tight and un-drag-producingly against the wing.

Dr. Thurston is continuing his experiments and will at some not too future date have more interesting results to disclose. As well as controlling the air flow over a wing the alula can also be used for control purposes and as a bird uses its wings for lateral and directional control, so an adaptation of the alula principle could be used for similar purposes in an aircraft.

A CHANCE FOR THE AMBITIOUS.

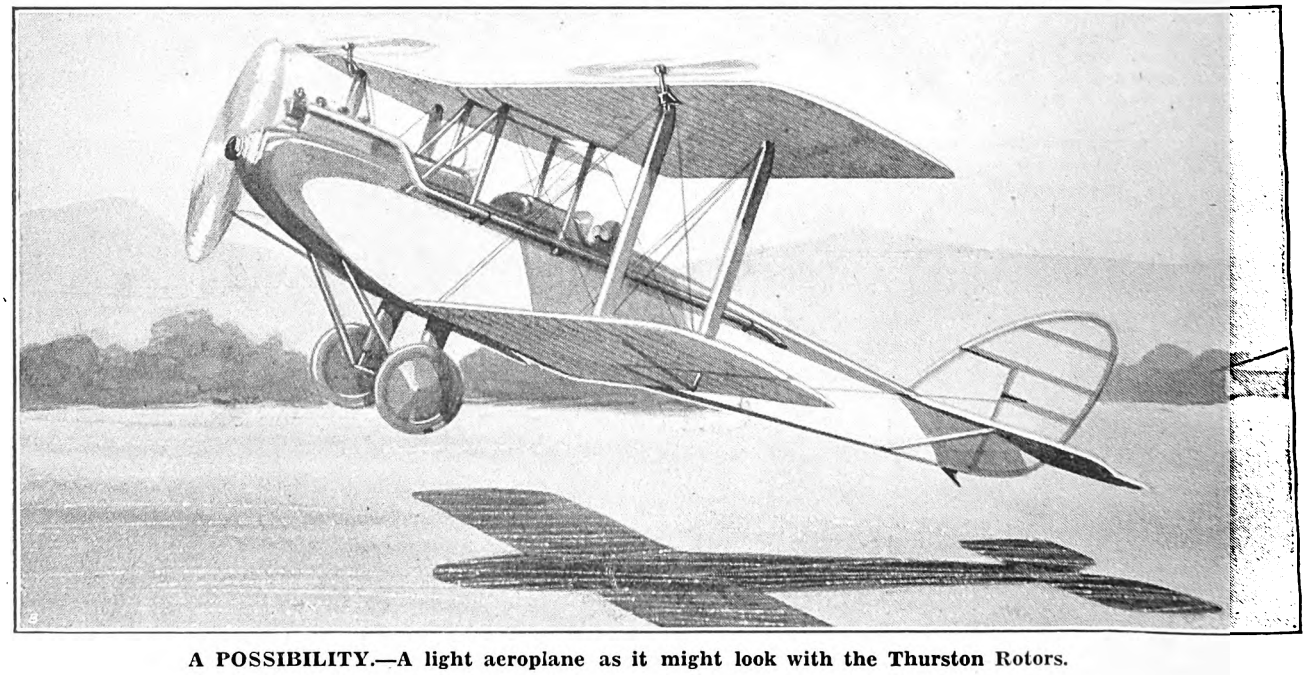
There is a vacancy for the Busk Studentship in Aeronautics for the year 1930-31. This studentship is worth about £150 and is tenable for one year from Oct. 1, but a student may be appointed on the same terms for a second year.

The object of the studentship is to enable the holder to engage in research or preparation for research in Aeronautics. He will be expected to devote his whole time to research on a subject approved by the Trustees and at the close of his studentship to make to them and to the University of Cambridge a report on his work. He may not engage himself for other duties without the express consent of the trustees.

The studentship has been established in memory of Edward Teshmaker Busk, who lost his life in 1914 while flying an experimental aeroplane. He was particularly interested in problems of stability, and his investigations resulted in the production of the B.E.2c, the famous inherently stable biplane of the early War period.

NEW FOLDERS BY IMPERIAL AIRWAYS.

Two new leaflets have been issued by Imperial Airways Ltd. One is a really highly artistic description of their equipment and service, and the other a complete time-table. Copies of either or both can be had post free from Airways House, Charles Street, S.W.1.



A POSSIBILITY.—A light aeroplane as it might look with the Thurston Rotors.

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HAVE GRANTED THE FOLLOWING

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GREATEST SPEED OVER
100 KILOMETRES.
FLYING OFFICER H.R.D.WAGHORN,
ON
SUPERMARINE ROLLS-ROYCE S.6.
7TH SEPT.,1929.
330·1 M.P.H. 531·200 K.P.H.

FLYING OFFICER R.L.R.ATCHERLEY,
ON
SUPERMARINE
ROLLS-ROYCE S.6.
7TH SEPT. 1929,
331·6 M.P.H.
533·800 K.P.H.

SUPERMARINE

WORLD'S
GREATEST
SPEED

SQUADRON LDR.
A.H.ORLEBAR, A.F.C.
ON
SUPERMARINE
ROLLS-ROYCE S.6
12th SEPT.,1929.
357·7 M.P.H. 575·700 K.P.H.

A REMARKABLE TRIBUTE TO THE
RELIABILITY OF THE DESIGN AND
CONSTRUCTION OF AIRCRAFT
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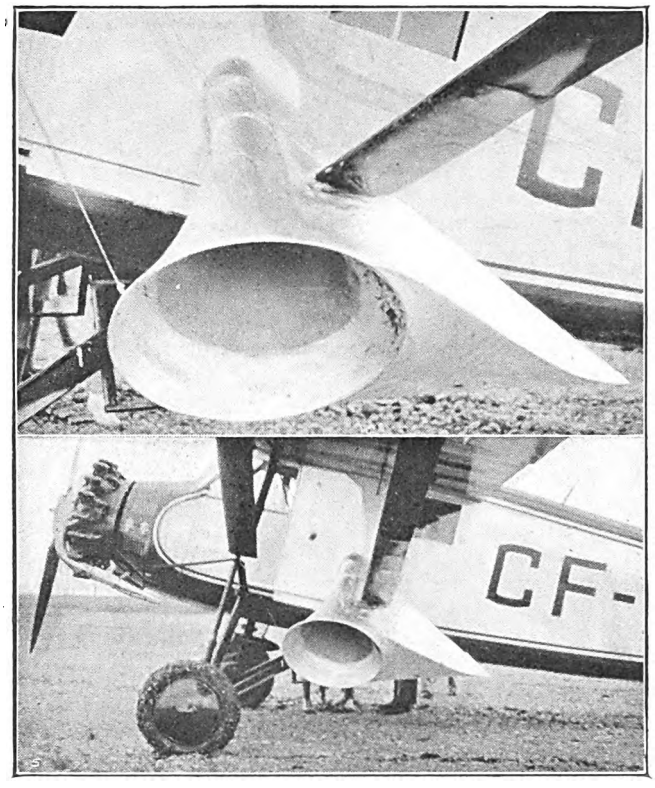

THE VOICE FROM THE AIR.

Broadcasting of the spoken word and gramophone music from an aeroplane in flight was tried for the first time in Canada on Dominion Day, May 24, on the occasion of the Montreal Light Aeroplane Club's garden party. The machine was a Stinson Detroiter (Wright Whirlwind) of Flying Services Limited, piloted by Mr. F. G. M. Sparks, and the broadcasting apparatus was fitted up by the Northern Electric Company.

The equipment, which Mr. Sparks intends to use for advertising purposes, is such as to magnify the input at the microphone several million times. Eight loud-speaker units such as are used for theatre reproduction are mounted at the end of a large horn which projects through the cabin wall and is carefully streamlined. Each pair of these is fed by one of four special amplifiers designed for aeroplane use. The microphone is so designed as to transmit normal speech under conditions that exclude engine and other noises.

The reduction of the necessary mass of apparatus to a weight of 600 lbs. was achieved by the ingenuity of Mr. O'Neill and Mr. Pick, of the Northern Electric Company. The demonstration talks from the cabin were done by Mr. M. Foss, and the spectators were able to hear the words distinctly even from heights of 4,000 ft. And so another terror is added to life.

THE FRENCH TRANSATLANTIC MAIL.

On July 8 M. Jean Mermoz, of the *Compagnie Général Aeropostale,* left Port Natal, Brazil, for Dakar, Senegal, on the first postal flight in this direction. Oil-pipe trouble forced him down on the sea when he had flown two-thirds of the distance, but he was in close touch with S.S. *Phocée,* which gave him help.

MANY INVENTIONS.

For a mere commercial bloke we have moved in social circles too exalted for us of late; and recently we shook hands in a single afternoon with no less than two spurred Knights and Mr. Organ P. Golley as well. "Here's richness," as Mr. Squeers said. In consequence we have acquired a superiority complex and a little book much used in the higher aeronautical circles entitled "Aspirates for Aviation Aspirants—All About Them And What To Do With Them," by Professor D. Roppergin.

High Society started visiting us on Thursday week, when, after having the Control Tower shored up with steel scaffolding, certain denizens of Croydon burst upon our astounded vision in an assortment of top hats in order to welcome Imperial Press Delegates who wore felt hats of a drooping habit.

In these days of tea-dances and other indoor sports, when, we are told, the centre of the intellect has shifted from the head to the feet, and that object resembling a brilliantined door knob often seen between a man's shoulders is an atrophied anatomical anomaly useful merely for nodding loosely to the music, a man's crowning glory is seldom his top hat and is more likely to be his beautiful shoes. It was the more refreshing therefore on Thursday last to see Croydon supporting these dear old-fashioned conservative ideals which have landed us where we stand to-day, and are typified by that Victorian garment the stovepipe hat.

Top hats being rare these days, some had obviously hurriedly converted their gibus by means of Kiwi boot polish, while others had besieged Moss Bros. of Covent Garden, who had nobly rallied round the ancient cause. One had been supplied with an 18th century vintage hatting of episcopal design, which (brows not being what they were) he supported upon and attached to his outstretched ears.

This worked well until he met a Press Delegate with three wives from the Fiji Isles, to whom he attempted to raise his hat three times in rapid succession. The sterling craftsmanship of the 18th century hatter was amply vindicated by the hat remaining undamaged and at the same time carrying away the wearer's ears. The hat has now been restored to Messrs. Moss Bros., who, it is understood, claim the auditory appendages as landlord's fixtures and propose putting the exhibit in a glass case on their premises alongside an admiral's cocked hat from Balaclava to which the original barnacles still adhere.

Good sport was also provided on the Thursday by Air Ministry Ruggings, Mattings and Carpetings Branch, who laid red carpets in the morning and then swiftly rolled them up and removed them just before the Imperial Press Delegates arrived. Imperial Airways took the carpet laying as a compliment to their universally acknowledged charm, but actually it was only a practice gallop by the Air Ministry for the oriental potentates expected on the Friday.

Eventually the whole Thursday show developed into a sort of high class carnival, and various Imperial pilots (whose contract does not allow them to wear top hats) were forcibly festooned with flowers, so that one was roses, roses all the way, and another was decorated with passionate purple lupins, two feet long, which not only impressed the Delegates no end but covered all concerned with swarms of green fly.

Oh! by the way, the Delegates enjoyed themselves no end and were all shown the weather report board at least twice by various enthusiastic floral guides.

On Friday red rugs were again laid at Croydon by an official in a green baize apron (whose motto on such occasions is:—Tak-a-mat or tsoo and lay it) this time for the Japanese Royal Couple, who were put through much the same gloomy ceremonial as the Press Delegates of the previous day, but who were treated in addition to a stunt, seldom practised in real life, known as Dropping the Mail.

A sack of picture postcards, complete with stamps, which the Air Ministry and G.P.O. have conspired to prepare for three weeks or so, is dropped by an aeroplane in a remote corner of the aerodrome on these occasions, and a postman, in full marching order, goes after it cruising at 2 m.p.h. and returns looking like a man about to be mortally unwell. The postcards are distributed amidst cries of admiration, wonder and delight and the postman goes back to the Air Mail Section, G.P.O., where he is regarded as a model of celerity and is kept in strict training in the cellars of the dead letter office with a tortoise as a sparring partner.

The next social whirl was a wonderful wedding party, mysteriously connected with the name of a well-known oatmeal stout, which hit the aerodrome one day last week and actually contained live men in real grey top hats. Bride and bridegroom were duly battened down into a D.H.50 and departed to Paris amid a shower of part-worn shoes and uncooked rice. One marvellous person, whose grey topper would have made Mr. Dunn grind his teeth enviously, drank bubbly publicly, much to our envy and wore a moustache which must be a whole-time job for an ex-oakum-picking valet, a barber-surgeon and chiropodist. He resembled Cyrano de Bergerac in modern kit.

Just to top up a gay week we went to Hanworth on July 5, where the idle rich of aviation were disporting themselves in piebald and skewbald shoes. Mr. Sidney St. Barbe cynically wrote BASS in the zenith at a time when only those who had never left it all the afternoon could get near the bar.

A scaffold was erected at Hanworth which was evidently a replica of the one that used to be on Tower Hill, and some excitement was caused when Mr. Handley Page mounted it, closely followed by Mr. Harold Perrin with what looked like an axe but which turned out to be some sort of wand of office. Mr. Perrin's expression was the grim one he inherits from his notorious ancestor Harold Ha-Hadrada, and people were quite disappointed when nothing more spectacular happened than the removal of Mr. H. P.'s hat, so that he could mop his brow.

Strong men groaned into the depths of their hats when Miss Brown came in first and when rumours that Mrs. Butler was second were wafted abroad, several weaker members of the male gender ran hysterically across the sward and threw themselves into the stream. This hectic high society life takes people like that, and for our part, therefore, we have decided to stick to the counter in future.—SPRY.

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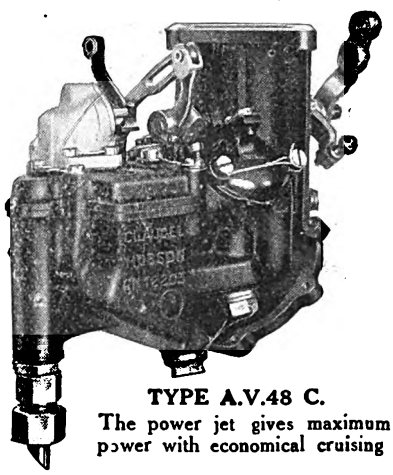
King's Cup Air Race Won on

CLAUDEL HOBSON
AERO CARBURETTERS

1st, 2nd, 4th, 5th, 6th, 7th, 8th, 9th and 10th!

This sweeping success in Britain's Premier Air Event is outstanding proof of the supremacy of Claudel Hobson Carburetters which were not only fitted to nine of the first ten machines but were also used by more than 60 per cent of the actual starters in the race.

	MACHINE	ENGINE	PILOT
1st	Avro-Avian (King's Cup and Siddeley Trophy)	Cirrus III	Miss W. S. Brown
2nd	De Havilland Moth (Fastest Time)	Gipsy II	A. S. Butler
4th	De Havilland Puss Moth	Gipsy III	Mrs. A. S. Butler
5th	Avro-Avian	Armstrong Siddeley Genet Major	D. S. Green
6th	Blackburn Bluebird	Cirrus Hermes	T. Rose
7th	De Havilland Hawk Moth	Armstrong Siddeley Lynx	Flt.-Lt. E. H. Fielden
8th	Avro-Avian	Cirrus III	Flt.-Lt. T. B. Bruce
9th	De Havilland Puss Moth	Gipsy III	H. S. Broad
10th	De Havilland Moth	Gipsy II	Capt. Hope



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TRADE NEWS

THE MECHANICAL ENGINEERS VISIT YEOVIL.

One hundred and eighty members of the Institution of Mechanical Engineers visited the Oil Engine and Westland Aircraft Works of Petters Ltd. at Yeovil on July 2. The party came from Bristol, where the Summer Meeting of the Institution of the Mechanical Engineers is being held. In the morning the guests were taken through the Engine Works, and in the afternoon they visited the Westland Works.

In the Engine Works the visitors saw in various stages of production the three classes of oil engines which Petters Ltd. make. The first range of engines are those from 1½ to 5 h.p. with magneto ignition, which are used for agricultural work, pumping, and the like. The next class is of the Hot Bulb type and ranges from 5 to 36 h.p. These engines can be instantly started from cold by the Petters Patent Cold Starter. The final range is from 25 to 400 h.p. and these engines are Diesels of the Airless Injection type.

The visitors were given lunch in a big marquee on the aerodrome. After lunch the vote of thanks to the hosts was proposed by Mr. Loughnan St. L. Pendred, who is President of the Institution of Mechanical Engineers.

Sir Ernest W. Petter, who is chairman of Petters Ltd., replied, and then excused himself on the plea that he had been talking all the morning. He called upon his brother, Mr. Percy Petter, who is Managing Director of the Engine Works, to speak in his defence.

Mr. Petter referred to the honour of having the heads of the great engineering businesses paying such a visit, and mentioned that in 1913 he, his wife and one of his daughters cut the first sod on the land where now are the Westland Works. He mentioned that some of the visitors represented firms with which they (Petters) were in daily competition and that seeing them there was a great pleasure. Mr. Petter concluded by saying that in this day and generation aviation had become a practical means of locomotion.

After Mr. Bruce had also spoken the visitors were taken through all the main departments of the Aircraft Works, including the wind tunnel and the large experimental shop. The visitors also saw the latest version of the Westland Wessex six-seater (three Genet Majors) of which four have been ordered by the Sabena firm for Belgium.

WIRELESS PRIORITY.

Several firms which specialise in wireless equipment for aircraft appear to be claiming priority in the use of aeroplanes for radio research. The real pioneers in this field certainly seem to have been Marconi's Wireless Telegraph Company Ltd. According to Mr. W. G. Richards, of this company, his firm has possessed an aeroplane used exclusively for research and experimental work since 1920, and before that preliminary investigation was done on aircraft arranged for, but not owned by, the firm.

The company's first aeroplane, a De Havilland 6, was the first civil aeroplane to be registered for commercial use by the Air Ministry. Its marking was G-EAAB, and it did all the pioneer work in the early development of wireless telephony for civil aviation. Its successor was a Renault Avro, G-EBAJ, and afterwards a Bristol Fighter, G-EBIO, was acquired to replace the Avro. The last machine is still in use for the development of short-wave wireless telephone and telegraph apparatus.

PROPAGANDA IN AUSTRALIA.

The Vacuum Oil Co. Pty. Ltd. of Australia, which company markets "Plume" petrol in that country, has taken delivery of a Gipsy-Moth for the use of the company's officials.

This machine has been attractively finished in the colours of the Australian kingfisher—blue, black, buff and white—and it has been named "Plume."

The "Plume" was shown on the stage of the Regent Theatre, Melbourne, for one week. When the curtain was raised the engine was started up, and during the week's run, of three performances daily, the engine did not once fail to start on the first pull-over of the airscrew. In conjunction with the exhibition of the "Plume" a film showed the construction of the machine, the first test flight, aerobatics taken from the front seat, general views, etc.

The Vacuum Oil Co. Pty. Ltd. are to be congratulated on their enterprise not only in buying a machine but also in using their machine to popularise flying in such a novel way.

AN OLD FRIEND.

Now that so many firms are joy-riding and so many people are building privately-designed aircraft, gliders and so on the need for a doping scheme which can be applied under adverse conditions becomes obvious. Because much of the doping work for concerns of the type outlined above has to be done under difficulties, a scheme is necessary which overcomes the adverse conditions of humidity, cold and draught.

As long ago as the early part of 1928, Titanine-Emaillite Ltd., 175, Piccadilly, met this need by the introduction of their "fool-proof" scheme T.5.S. which has an official description which says that it is "for doping under adverse conditions." This scheme only requires four coats to get a high-class result and finish. The Titanine Technical Staff should be congratulated on finding at that early date a way over difficulties which were once considered unsurmountable.

The firm also have a transparent dope which is very suitable for gliders and is similar to that which is used on the German sail-planes.

TO THEM THAT SIT IN DARKNESS.

For aviation to compete on equal terms with other forms of transport, it must be organised to operate throughout the whole twenty-four hours. This can only be achieved by adequate ground organisation, of which the lighting of air routes and air ports forms perhaps the most important part. One of the English firms who can supply equipment for such lighting is the London Electric Firm of Croydon.

This firm have recently issued a booklet which aerodrome executives, municipal engineers, and anyone else connected with the running of an air port will find of value. In the pages of *Aerodrome and Airway Lighting* the firm first outline the various requirements of a lighting system and then outline the equipment which they have developed to fill such requirements. Among these, are the floodlight beacon mounted on a tractor, such as one can see at Croydon, ceiling projectors of various types, revolving beacons and course lights.

Responsible inquiries should be made to the London Electric Firm, Brighton Road, South Croydon, Surrey, and mention should be made of THE AEROPLANE.

THE CATERPILLAR WITH BAR.

The problem of augmentations, additions or duplications to the insignia of the Caterpillar Club is becoming urgent. For the second time within three months Plt./Off. J. Heber Percy, No. 43 (Fighter) Squadron, R.A.F., Tangmere, recently took to his parachute in an emergency and saved his life. He used the same parachute on both occasions, but there is no record whether he saved the ring.

In the United States, where there are rather more restless folk who make a habit of walking over the edge, the Caterpillar Club credits members with a star for each emergency jump after they have made more than one Col. Charles Lindbergh, for example, is a "four star" member. As the system of decoration is rather different in the British Empire the most fitting arrangement would seem to be the addition of a bar to the Caterpillar.

AN EMPLOYMENT BUREAU FOR PILOTS.

The Guild of Air Pilots and Air Navigators of the British Empire have for some time realised the need for an Employment Bureau for the exclusive use of its members. Highly qualified pilots are always difficult to get and so the Employment Bureau has been formed with the object of providing a quick and ready means of introduction between employers and pilots. All firms interested are invited to communicate with the Secretary, The Employment Bureau, The Guild of Air Pilots and Air Navigators of the British Empire, 61, Cheapside, London, E.C.2.

A HIGH DUTY.

Mr. Hugh Geoffrey Herrington has joined the staff of High Duty Alloys Ltd. and will act as General Manager. This is one of the results of the continued expansion of the firm's business. Another result is that the firm have

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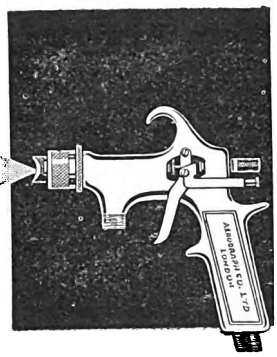

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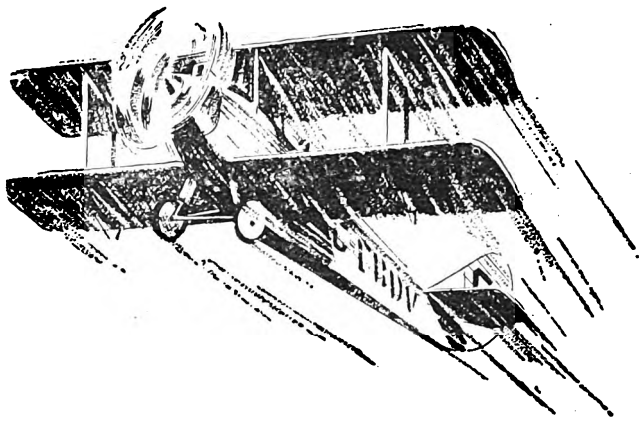

KING'S CUP WON ON "BP"

SPECIAL MOTOR SPIRIT

Miss Winifred S. Brown, piloting her Avro Avian (Cirrus III. engine), who won the King's Cup and Siddeley Trophy in the 750 Miles Round Britain Air Race on July 5th, chose to have her fuel supplied by "BP."

Flight - Lieut. H. R. D. Waghorn, piloting a Blackburn Bluebird Mark IV., who was third, also chose to have his fuel prepared by "BP."

Have you entered yet for the "BP" £2,000 Cash Prize Competition? Ask your Petrol Dealer for Free Entry Coupon.

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had to extend their laboratory. They have also increased their technical equipment and have installed the latest type of fatigue-testing machine as well as an X-ray plant.

High Duty Alloys Ltd. are making a very high reputation for themselves as makers of the Hiduminium R.R. Alloys. In his paper on Water-cooled Aero Engines, read before the Royal Aeronautical Society on Feb. 27, 1930, Mr. A. J. Rowledge, the famous designer, said:—

There is a steady improvement in the materials available for use in building our engines. We are now using a new aluminium alloy known as the R.R. T.50.L. This alloy is formed by the addition of copper, silicon, nickel, titanium and other constituents. In the cast form it has an ultimate strength of not less than 12 tons with an elongation of 3 to 8 per cent. Sand-cast with a low-temperature heat-treatment, it has a strength of not less than 14 tons with an elongation of not less than 3 per cent. Its specific gravity does not exceed 2.75.

These figures do not show all the advantages that have been attained as the material retains its strength particularly well at high temperatures and has a consistency of quality under ageing conditions not possessed by the zinc alloys. It is also more consistent as a production material. These results have been confirmed in actual practice. The alloy also has very good forging qualities and its use in this direction is being developed.

A GOODYEAR APPOINTMENT.

Marshal of the Royal Air Force, the Lord Trenchard, G.C.B., D.S.O., LL.D., who recently joined the board of the Goodyear Tire and Rubber Company in America, was elected to the board of the Goodyear Tyre and Rubber Company (Great Britain) Ltd., whose factory is at Wolverhampton, at a meeting of the directors of that company held on July 11 at the Park Lane Hotel, London.

SLOTS IN CANADA.

Major R. E. Nicoll, late R.N.A.S., and R.A.F., and for the past two years District Superintendent of Western flying operations in the Ontario Provincial Air Service, has now joined the Aircraft Slotted Wing Corporation Ltd., of Toronto. This company is the sole owners of the Handley Page Slotted Wing Patents for Canada.

Many of the older pilots in this country will remember Major Nicoll (known to his friends as Reggie) in the Naval Air Service, and later with Mr. Koolhoven in the B.A.T. firm—which was the property of Lord Waring, who is generally regarded as having obtained his title in connection with aviation.

Major Nicoll served in the R.A.F. with a Short Service Commission after the War. He then went to Canada and took to flying again with such success that several years ago he was given the responsible job of superintending the operations of the Ontario Provincial Service in the Western Area. The Slotted Wing Corporation is to be congratulated on securing his services.

GUBERNATORIAL APPRECIATION.

The excellence of the products of the famous firm of C. C. Wakefield and Co. Ltd. is known to everybody, so the latest honour conferred upon the company will be interesting to all. The Indian Branch of this all-British firm has been granted a Warrant of Appointment as Suppliers of Lubricants to His Excellency the Governor of the Straits Settlements. With this mark of gubernatorial appreciation the Company are naturally very pleased.

THE D.H. ANNUAL SPORTS MEETING.

The De Havilland Sports Club held their Annual Meeting at the D.H. Sports Ground at Canons Park on July 12. This is a thoroughly cheery family party. Everybody turns up, and finds something useful to do. Quite a surprising number of people managed to be useful in the ankle judging competition and there were frantic complaints from the crowd that the spectators could not see the ankles for the judges. A tribute really to the magnificent collection of ankles at Stag Lane.

One cannot unfortunately list the winners of all the events and comment on everybody's performance as The Aeroplane is too pressed for space, so the writer must content himself with mentioning one or two things that were outstanding. The Punch and Judy Show proved a very great draw, and craning over the heads of the thoroughly absorbed children could be seen the faces of people who are as well-known in Aviation as *Punch* is on the bookstalls.

There was one thing, however, that the children had all to themselves and that was the lucky dip, bran-tub, or what not, in which whole families were buried for hours on end to the detriment of their party clothes. I heard one small girl who was unlucky and whose father was carrying her back to drop her anew in the maelstrom, say plaintively, "It's no good, they'll see I've been in already," and she was right.

The high jumps provided a good struggle and the ladies' event was thrilling. The runner-up just managed to clear the cross-bar on her last attempt time after time. The tug-of-war was full of excitement and the matches were well contested. The struggle between the D.H. Management and the Visitors was very equal, though one had had hoped for more effective vociferation from Messrs. Hope and St. Barbe in their capacities as foreman-tuggers or cheer-captains. One regretted too that Mr. Hope failed to appear in the blue jersey which was so brilliant a feature of the Race for the King's Cup.

The event that caused most popular amusement, and frightful applause among the children, was the pillow fight on a greasy pole over a tarpaulin full of water, into which the wretched victim was knocked. Some of the fighters were very competent.

Feeling ran high when Mr. Douglas, representing South Africa, and Mr. Buckingham, representing England, set to. They were comparatively fully clad and the idea of one of them falling in the water was really exciting.

One of the features of the afternoon was Mr. Broad's flying, mostly inverted, on "LT." The children loved "LT" because from it with the most amazing accuracy issued hundreds of little envelopes all weighted with halfpennies and some with prizes. The children, divided into sexes, were let loose to scramble for the scraps of paper.

About nineteen hours everybody crowded round the prizes, which Mrs. Butler gave away. And so the happy party drew to an end and everybody drifted homeward, some piled high with loot. The festivities went on though, because there was a dance at "The George," but that, as Kipling would say, "is another story."—T. J.

NEW COMPANIES.

Associated Transmissions.—Associated Transmissions Ltd. was registered as a "private" company on July 8, with a nominal capital of £100,000 in £1 shares. The objects are to acquire the undertakings and assets of Humfrey Sandberg Co. Ltd. and Gearless Transmission Co. Ltd., to use, exploit, grant licences in respect of and turn to account the inventions, patents and patent rights comprised in the agreements. The subscribers (each with one share) are: C. P. Sandberg, 40, Grosvenor Gardens, S.W.1. N. P. P. Sandberg, 40, Grosvenor Gardens, S.W.1. The directors are: J. B. E. Dahlerus, W. N. Duff, S. R. Hogg, J. C. W. Humfrey and Col. The Master of Sempill.

Solicitors: Thicknesse and Hull, 5, Little College Street, S.W.1.

Swansea Airways Ltd.—Private company. Registered June 19. Capital, £100 in £5 shares. Objects: To carry on the business of aircraft proprietors and manufacturers, carriers, aeronautical experts, consultants and engineers, manufacturers of and dealers in aeroplanes, seaplanes, flying-boats, airships, gliding machines, motor-cars and cycles, etc. The directors are: J. O. Smith, 17, Grosvenor Road, Sketty, Swansea, automobile engineer. W. O. Harold de Mattos, 1, Upland Buildings, Swansea, stockbroker. Qualification: One share. Remuneration: As fixed by the company. Solicitor: P. P. Jones, 11-12, Wind Street, Swansea.

MORTGAGES AND CHARGES.

Safetex Safety Glass Ltd.—Charge on freehold land and buildings at Hendon and the company's undertaking and property, present and future, including uncalled capital, dated June 30, 1930, to secure £14,000 inclusive of £12,000 already registered and increase in the rate of interest on the said £12,000. Holders: Safetex Glass Holding Co. Ltd., 21, Great Portland Street, W.

PERSONAL NOTICES.

Deaths.

BROWN.—On July 12, at his residence, 2, Chesterfield Gardens, N.W.3, Ernest Brown. He was one of the founders of the firm, Brown Brothers Ltd., and held the position of Joint Managing Director for many years. From 1929-1930 he was Chairman of the Company.

GORDON.—On July 9, at Hinaidi, 'Iraq, as the result of a flying accident, Sjt. John Ritchie Gordon, No. 55 (Bomber) Squadron, R.A.F.

JARVIS.—On July 5, in Princess Mary's R.A.F. Hospital, Halton, after a short illness, Mary, the wife of S-M. C. Jarvis, R.A.F.

Marriages.

EARDLEY-WILMOT—VINCENT.—On July 14, at Dunmow, Flt. Lt. Lambert Eardley-Wilmot, R.A.F., younger son of Major and Mrs. H. Eardley-Wilmot, to Angela Clare Gertrude, second daughter of the late Colonel and Mrs. A. H. Vincent, of Summerhill House, Castle Connell, Co. Limerick.

HARDMAN—THOMPSON.—The marriage took place on July 8, at St. George's, Hanover Square, of Flt. Lt. James Donald Innes Hardman, R.A.F., elder surviving son of the late Mr. James Hardman, M.A., of Delph, Yorkshire, and Mrs. Hardman, of Oxford, and Miss Dorothy Ursula Ashcroft Thompson, elder daughter of Mr. and Mrs. Ashcroft Thompson, of Larkenshaw, Chobham.

HUME-WRIGHT—GARWOOD.—On July 5, at Southsea, Flt. Lt. P. J. A. Hume-Wright, son of Major Hume-Wright, late Mysore Civil Service, to Freda Elizabeth Garwood, only daughter of Eng.-Capt. and Mrs. Garwood, of Southsea.

IRON—SANKEY.—The marriage arranged between Sq. Ldr. Douglas Iron and Phyllis Violet Sankey took place on July 7.

PLUMMER—PHILLISKIRK.—On July 12, at Guildford, Surrey, Alfred John Plummer (R.A.F. Reserve, late R.N.A.S.), only son of Mr. and Mrs. Plummer, of Netley Abbey, Hants, to Peggy, youngest daughter of Mrs. E. J. Philliskirk, of Millbrook, Hants.

Forthcoming Marriage.

ALLAN—CAMPBELL.—The marriage arranged between Mr. J. C. Allan, R.A.F., and Miss Margery Campbell, will take place quietly at Lilliput, near Bournemouth, on Aug. 7.

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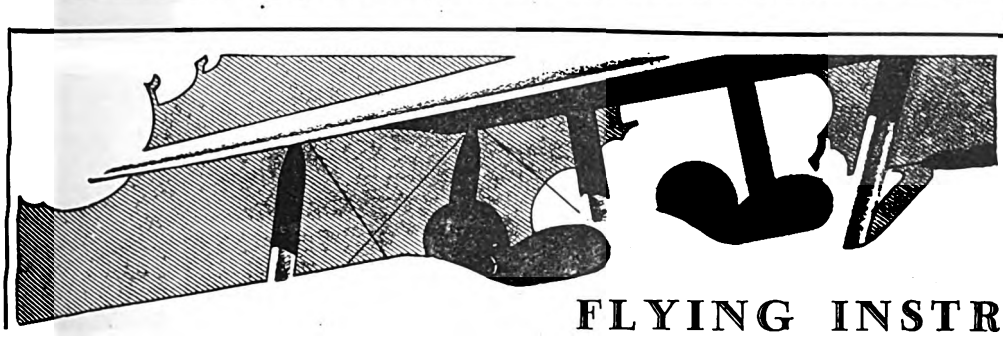

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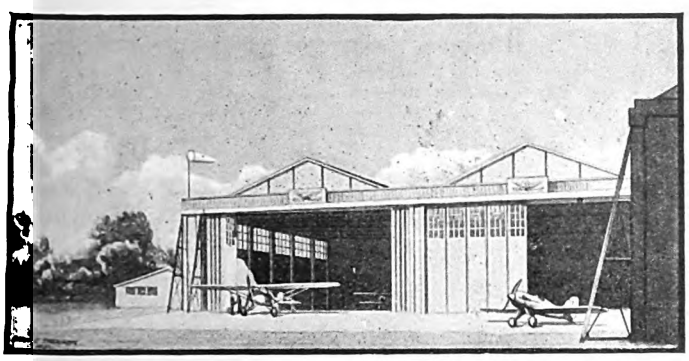

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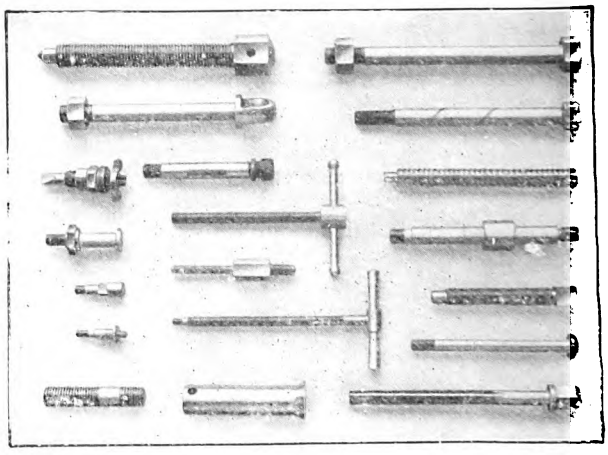

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THE AEROPLANE

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INCORPORATING AERONAUTICAL ENGINEERING

Edited by C.G.Grey

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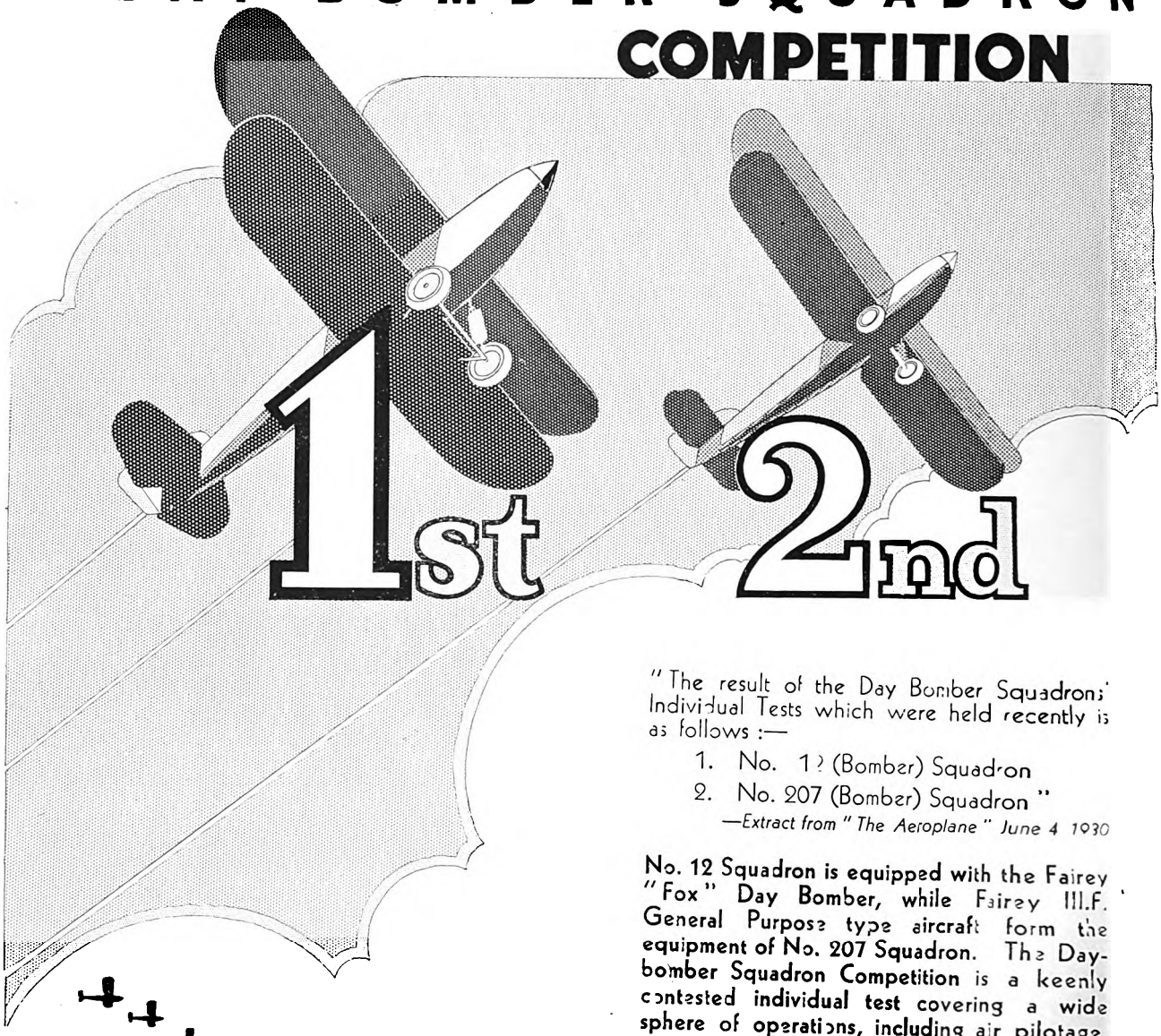
THE ROYAL AIR FORCE

DAY BOMBER SQUADRON COMPETITION



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—*Extract from "The Aeroplane" June 4 1930*

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JULY 23, 1930.

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Incorporating

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VOL. XXXIX

No. 4.

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Accounts relating to Publishing and Advertising should be sent to the Offices of Aeronautics Ltd., Cannon House, Pilgrim Street, Ludgate Circus, E.C.4. Telephone: Central 5822.
Subscription Rates, post free: Home 3 months, 7s. 6d.; 6 months, 15s.; 12 months, 30s. Abroad, 3 months, 8s. 9d.; 6 months, 17s. 6d.; 12 months, 35s. Canada, 1 Year, $8. U.S.A., 1 Year, $8.50. Entered as second class matter at the New York (N.Y.) Post Office.

ON THE START OF THE TOUR OF EUROPE.

Those of us who have had the pleasure of taking part in the start of the Second International Tour of Europe, or *Challenge Internationale de Tourisme*, or *Internationaler Rundflug*,—whichever you like to call it,—will always remember it as the outstanding example of efficient organisation and international good-fellowship in our experience of aviation. And, incidentally, the German word "Rundflug" is an excellent example of the simple and efficient way of doing things,—a round-fly is much handier than an aerial circuit, and though the word "tour" is literally right it has taken on a different meaning which does not fit this competition.

The full rules, and the route, and the system of marks, and the list of entrants for the competition were published in THE AEROPLANE last week. So we may assume that readers of this article and of those which will follow in succeeding weeks already know all about such things. And those who do not know and want to know can get the information from back numbers obtainable from this office.

The Rundflug is by far the most important event of this year, for it is a full-scale test of the latest models of the light aeroplanes of all the nations that matter. Italy has chosen to stand out this year, and that is Italy's loss, for if there happen to be any good Italian aeroplanes they are deprived of the chance of proving their worth. And because it is the great event of the year THE AEROPLANE proposes to deal with it very fully.

ENGLISH REGRETS.

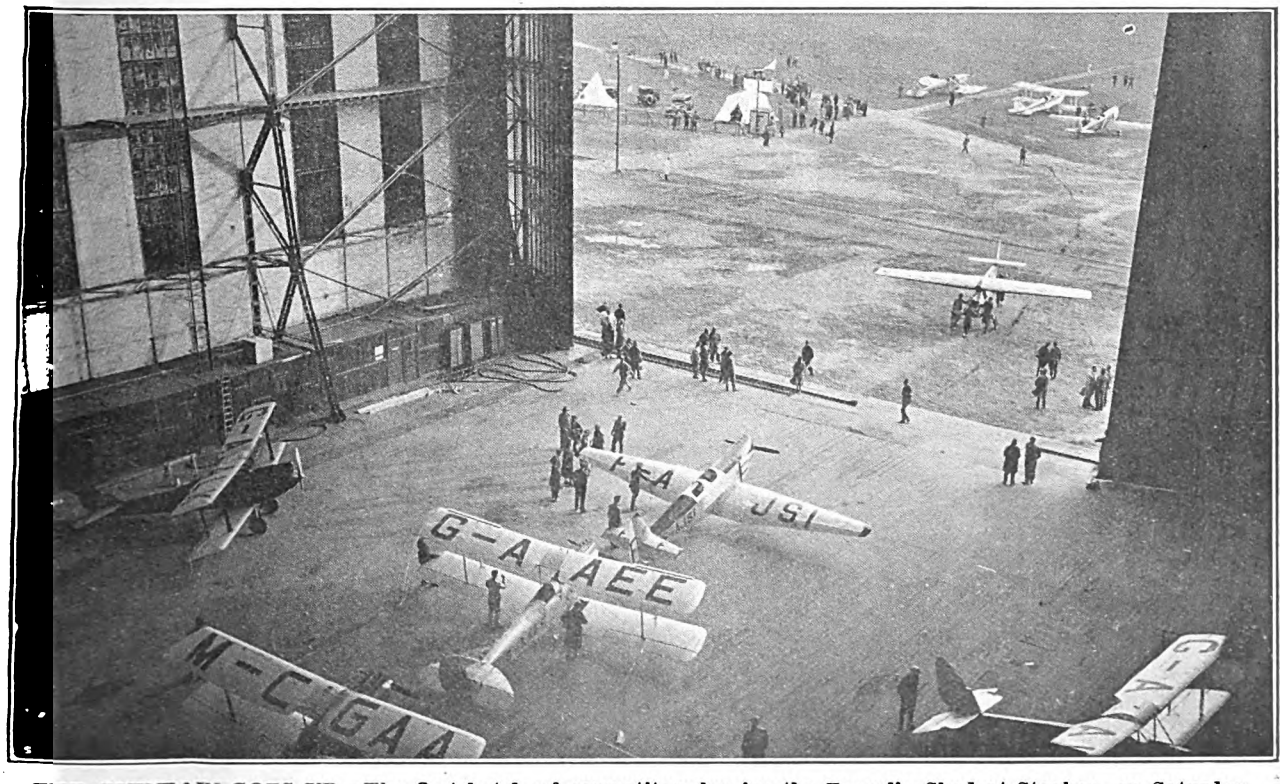
There are two things we English have to regret. One is that two of our very best aeroplanes, the Puss-Moth monoplane, with its inverted Gipsy engine, and the Desoutter Mk. II, also with an inverted Gipsy, are barred from the competition by their weight. The Puss-Moth caused a sensation when it appeared at Staaken and at Tempelhof, and the Desoutter would do likewise.

The rules ought to be altered so that in future the machines may be classified by the cylinder-capacity of the motors. Then the weight of the machine would become the competitor's own affair, and the competition would tend to produce efficiency. The "quality competition," including such things as getting off and alighting, after the fly-round itself, would eliminate the unduly heavy machines. And marks should be given for "useful load" carried in the machine. On any such system the Puss-Moth would come out very well, judging by known performances. And the new Desoutter, which does 125 m.p.hr., would give it a very good run for its money.

At present the rules tend rather to produce heavy reliable motors and dangerously light aeroplanes, or at any rate aeroplanes in which weight is saved at the expense of practicability, as in the Polish monoplanes, which have no undercarriages, and would be ripped open from end to end if they lit on a rock more than six inches high. And that is not the best direction for progress.

The second thing we have to regret is that there were so few British entries. In the King's Cup Race we produced 101 all-British entries, 88 starters, and 65 finishers of 21 different types, and of at least 40 varieties. And yet the best we could do was to turn out seven starters out of sixty of all nations, to fly round Europe in a contest of World-

"THE FIRST ACT'S DOUBTFUL, BUT WE SAY
IT IS THE LAST COMMENDS THE PLAY."
(HERRICK—*Hesperides*.)



THE CURTAIN GOES UP.—The first batch of competitors leaving the Zeppelin Shed at Staaken, on Saturday, July 19, to fly to Tempelhof for the start next morning. AEE is Lady Bailey's Moth, and Miss Spooner's ALK, is on the left. The last act will be played at Staaken between Aug. 1 and Aug. 7.

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wide interest, in which an excellent advertisement is to be got not only by the winner but by any machine which puts up a good performance.

Moreover, thanks to those two splendid sportswomen, Lady Bailey and Miss Spooner, two of our pilots are women. So what is there to be said for our sports-*man*-ship? If poor Poland could turn out 12 starters and Germany 29, why could we not find more than five Englishmen to compete, even if the Irish and Scots and the British Dominions Overseas were not interested?

Really, what with our subsidised clubs and rich young sportsmen, and well-to-do manufacturers we ought to do something about it two years hence. By then some of our younger firms ought to have developed to the point of putting in an appearance, as the Spartan company are gallantly doing this year,—good luck to them.

Possibly, also by then, we may have induced the International Federation not only to alter the rules to classify the machines by engine capacity, but we may include a third class for twin-engined machines to include such machines as the Segrave Meteor and the Cutty Sark,—for two years' hence there ought to be several types in that category. Meantime, all the more credit is due to the De Havilland Co., the Cirrus Co. and the Spartan Co. for entering Messrs. Butler, Broad, Thorn, and Andrews; and to Mr. John Carberry for entering himself, albeit in an American airplane.

The Rules.

So far as the present rules go there seem to be few complaints to make. In fact, in some 35 years of assorted sports and competitions, one has never heard so few complaints against either the injustice of rules as such or against their interpretation by the Committee which operated them.

We English have always admired German organisation, and never more so than during the late lamented War 1914-18, which has so vastly increased our respect and friendship for Germany—as wars which are well fought on both sides always do after years have softened the bitterness of the time. But we have still an idea that German organisation is apt to be over-organised and that German rules and regulations are apt to be too rigidly enforced, and that those who administer them are apt to fail for lack of flexibility.

The preliminary proceedings of the Rundflug have removed any such ideas from those who took part in them. In fact if anything the rules were interpreted too flexibly.

For instance marks are awarded for machines with closed cabins, and this rule has been stretched to include attachable, or detachable, tops, not only more or less permanent fixtures like the Moth coupé, but mere hoops of celluloid held together by strips of metal over machines like the standard Klemm.

Also marks are given for dual control. But competitors are allowed to take out the second stick and rudder-bar and stow them where they will,—for instance in front of the front cockpit so as to trim the ship down by the nose and give her a bit of extra speed, by reducing the tail-drag which would be caused by holding the tail up with a positive angle on the tail-plane if the machine were tail-heavy.

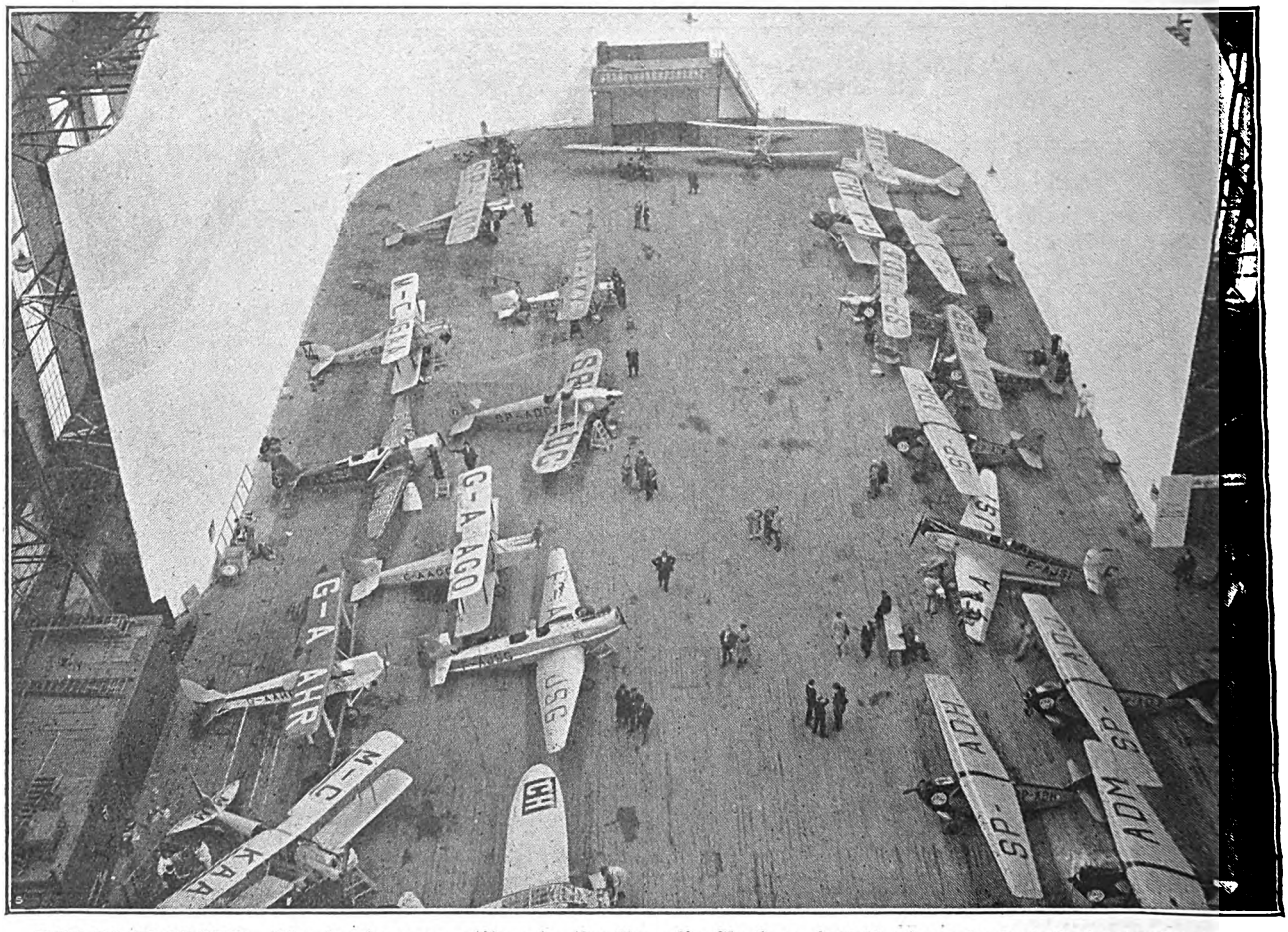
Another example of sensible flexibility was shown about parachutes. Marks are given for carrying parachutes. And very reasonably the rules insist that the parachutes must be of a type approved by the country of origin and must be stamped by the authorities of that country,—which is to prevent competitors from carrying a handkerchief and calling it a parachute (to quote Mr. Hubert Broad).

Unfortunately, as Sq. Ldr. Darwin, our Kommissar, remarked plaintively, competitors never *will* read the rules,—the word *etampés* was quite clear in the French authorised version. And so several British competitors appeared with perfectly good Irvins, and one pair with Russells, unstamped. The latter did not even know whether the Russell is an approved type or not,—and one confesses to equal ignorance.

The German officials in charge of this section of the rules gave the eminently sensible decision that as the marks would not be awarded till after the full course had been covered the British competitors could have their parachutes stamped at Heston on their way through England. But they also decided that to earn their marks the parachutes must be worn,—which caused some consternation among competitors in "cabins" which had been devised to give as little head-resistance to the air as possible and so have low roofs which promise a good deal of head-resistance to the crew when they sit on thick parachute-packs instead of thin cushions.

A Matter of Marks.

Every mark is of importance in this competition. In the last contest Herr Morzyk beat Mr. Broad by two marks, and thereby pocketed several hundreds of pounds. And Herr Morzyk won because he got 20 marks for doing fastest speed in his class (the lighter class). Mr. John Carberry (Baron Carbery in the Peerage of Ireland) got the 20 marks



THE BACK-CLOTH.—The foreign competitors in the Zeppelin Shed, against the huge back-cloth formerly used by a film company.

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Extract from official narrative of a survey cruise by two

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Flying Boats

(2 Napier engines) of No. 205 Squadron.

"IT is noteworthy to record that in the case of the S.1150 the completion of this cruise brought her total flying time since purchase to 596 hours, and she had been afloat for one year and 75 days. During that time also she had experienced no trouble of any kind. With the exception of one or two minor technical troubles, such as the changing of one plug, the aircraft and engines behaved splendidly throughout the whole period of the cruise." *The Royal Air Force Quarterly. July, 1930.*

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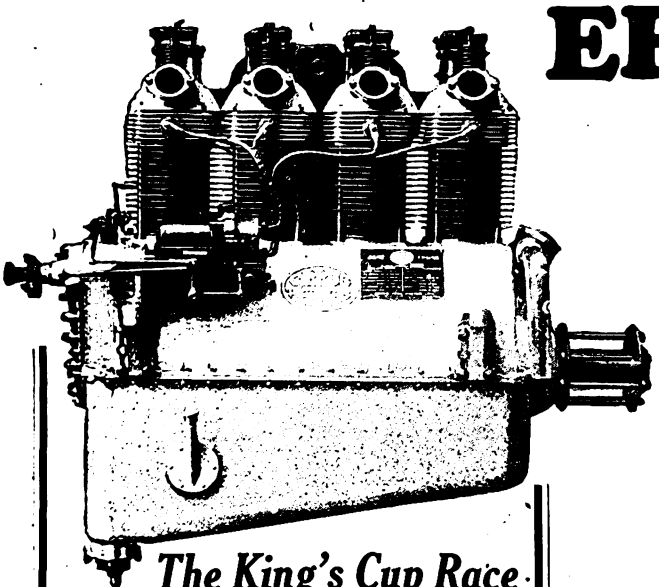

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1928, 1929 & 1930.

¶ A CIRRUS or HERMES

ENGINE

was fitted in

11 OUT OF THE FIRST 25

machines which completed the course.

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6th HERMES BLUEBIRD. Mr. T. Rose.

8th CIRRUS III AVIAN. F/Lt. T. B. Bruce.

15th HERMES ELF. "H. A. Presto."

16th CIRRUS III MOTH. Mr. J. B. Buckley.

17th CIRRUS III MOTH. Lt. L. G. Richardson.

19th HERMES WIDGEON. Mr. R. G. Cazalet.

21st HERMES SPARTAN. F/O. McKenna.

23rd HERMES DESOUTTER. Mr. P. E. G. Sayer.

24th HERMES HENDY 302. Capt. E. W. Percival.

25th CIRRUS II MOTH. Mr. P. A. Wills.

28th CIRRUS II AVIAN. Lt. Caspar John.

29th HERMES AVIAN. Mr. S. A. Thorn.

32nd CIRRUS III MOTH. Mr. W. L. Runciman.

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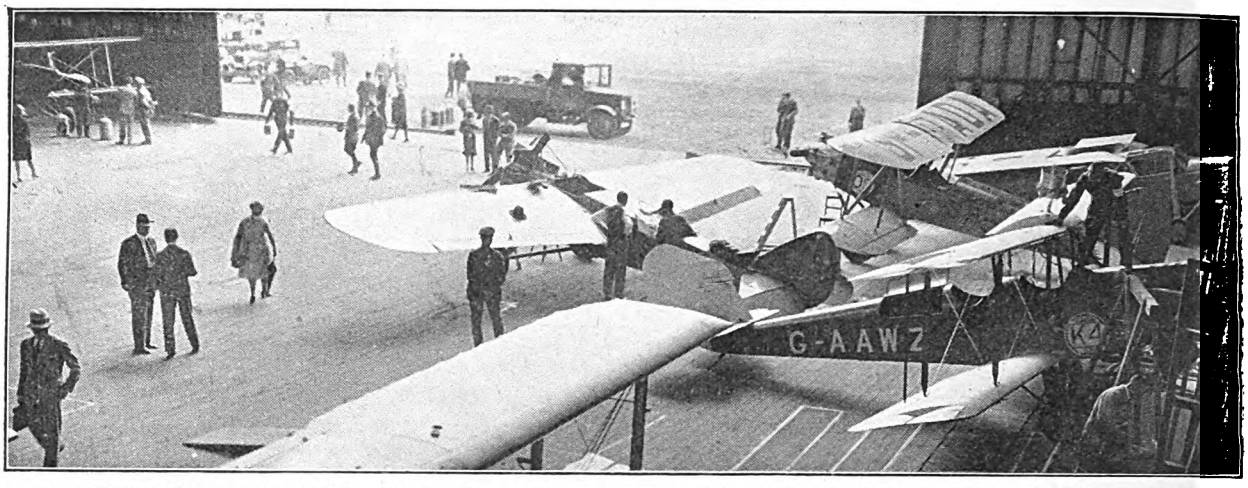

A DEPRESSION.—Wet Friday at Staaken. Mr. Norman's visiting Puss-Moth may be seen folded in the corner.

They were received by Herr Brandenburg, the Chief of the Air Transport Department (Luftverkehrsministerium) in the Ministry of Transport (Verkehrsministerium), and Herr Baumke, of the same department, and by Major von Kehler, one of the founders of the Aero Club of Germany (Deutsche Aeroclub), and now its Chairman, and by Herr von Hoeppner, the General Secretary,—the highly efficient and entirely amiable successor to our dear old friend the late Major von Tschudi, the real father of German Aviation.

Mr. Montague will soon be an International Authority on Aviation if he goes on at this rate. A flying meeting of any importance without him in these days is as unimaginable as it would be without Sir Sefton Brancker. Whatever complaint we may have against our wealthy people for not supporting aviation on this and other International Occasions, we certainly cannot complain of the energy and initiative of the two men who are primarily responsible to the British Public for our Civil Aviation. The pity is that we have not a few thousand more like them.

The British official party made a detailed inspection of all the machines. And, incidentally, Mr. Montague shows symptoms of having a strong tendency towards engineering knowledge,—which he will find useful in his dealings with the British Aircraft Industry in due course. Also he has a distinctly good eye for a good-looking aeroplane. Those which seemed to take his fancy were those which were worthy of attention.

After the inspection the party were entertained at lunch in the church-restaurant. It was a cheery affair,—and there were no speeches.

THE BEGRUSSUNGSABEND.

On the Friday evening all the competitors had been entertained by the Deutsche Aeroclub to a Begrussungsabend. If you do not know what that is, it is worth knowing. It merely means a begreeting evening. And it is all that. The members of the Deutsche Aeroclub do not just say "Pleased to meet you," and leave it at that. They really do give you greetings, and comfort you with solid and liquid refreshment,—especially liquid. There is no beer like German beer, and there is no wine like Rheinwein and Mosel.

After the Deutsche Aeroclub the Royal Aero Club of Great Britain makes one ashamed. The great von Tschudi bought the building cheap after the War when money was scarce, and the Club had some accumulated funds. The inside, like the outside, is both beautiful and imposing.

On one floor the walls are decorated with really magnificent war pictures,—naturally showing the prowess of Germany's war-pilots. A few years ago von Tschudi, showing these pictures to an English visitor, remarked, in his humorous way, "I do not hesitate to show you these pictures, for I know that in England you have just such pictures; only the position of the black crosses is reversed."

In this fine building is housed also the societies which represent Science, and the Trade and Propaganda. It is as if we had the Royal Aeronautical Society, and the Royal Aero Club, and the Air League and the Society of British Aircraft Constructors all under one roof but each with its own premises. Which is just what we ought to have. Some idea of this sort is being discussed, and if it becomes a fact it will be a very good thing.

The Reichsverkehrsminister, Herr von Guérard, made a brief speech of welcome, and so did Major von Kehler,—for which they were duly attacked next day in the sort of paper which our German friends graphically call a "Skandalblatt,"—a word which fills a long-felt want in the English language. And the rest of the evening and some of the morning was a continuation of greetings.

One of the most entertaining events was a long discussion between the great German war-pilot Captain Loertzer, who commanded No. 2 Jagdstaffel—the opposite number to the famous von Richthofen Squadron—and Lieut.-Col. Louis Strange, D.S.O., M.C., about just why neither of them succeeded in killing the other during the later part of the War, when Loertzer's squadron in Fokker DVIIs were up against our new Snipe with Bentley Rotary motors. Apparently the Snipes were faster and had a much better climb, but the pilots *would* try to turn with full engine, whereas Loertzer taught his pilots to throttle right back and turn with an almost dead motor. Some of the young pilots of to-day might have learned a lot from that talk.

INDUSTRY.—Miss Spooner at work, as usual, on ALK. Two Polish biplanes and a French monoplane in the foreground.

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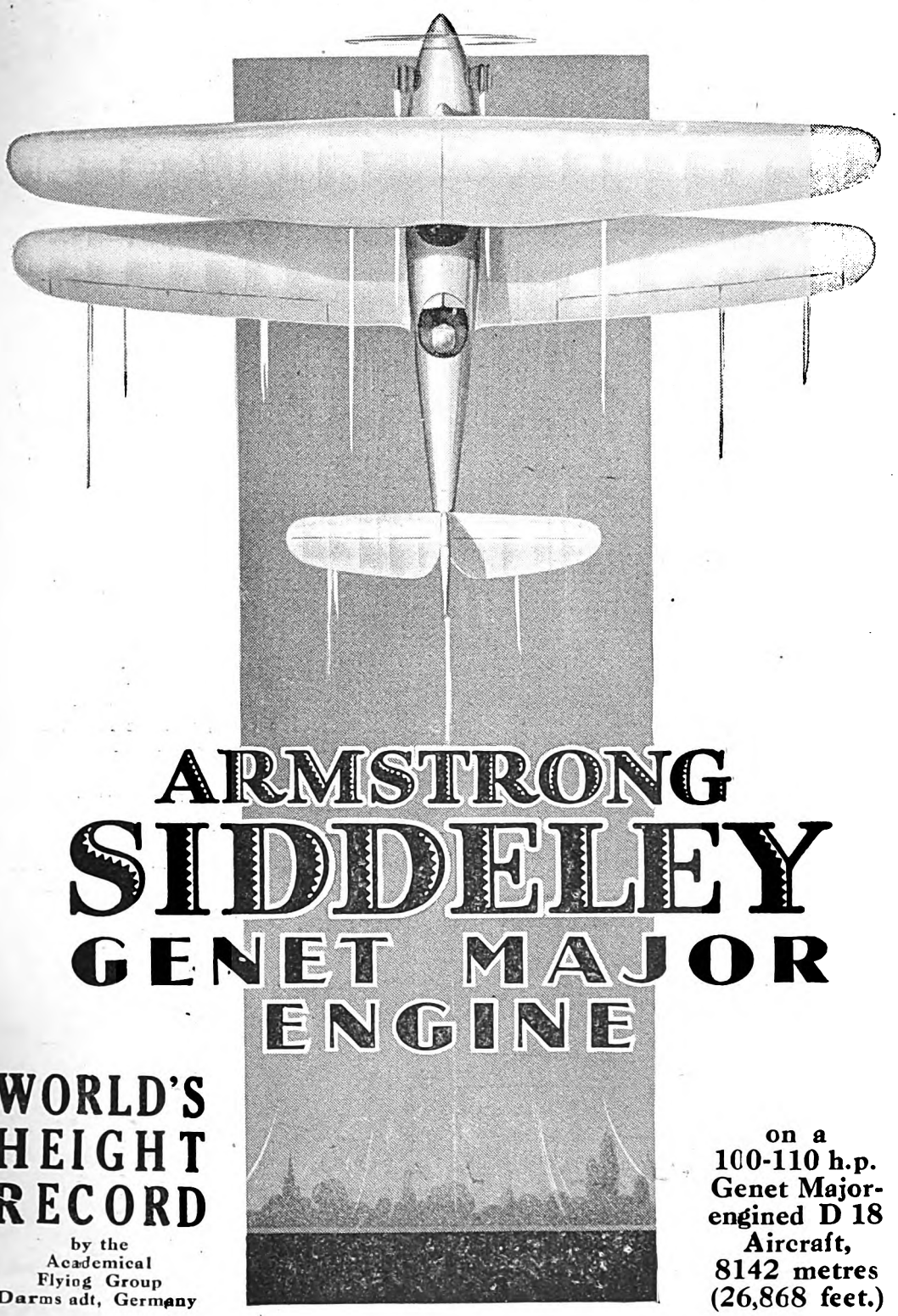
26,868 Feet



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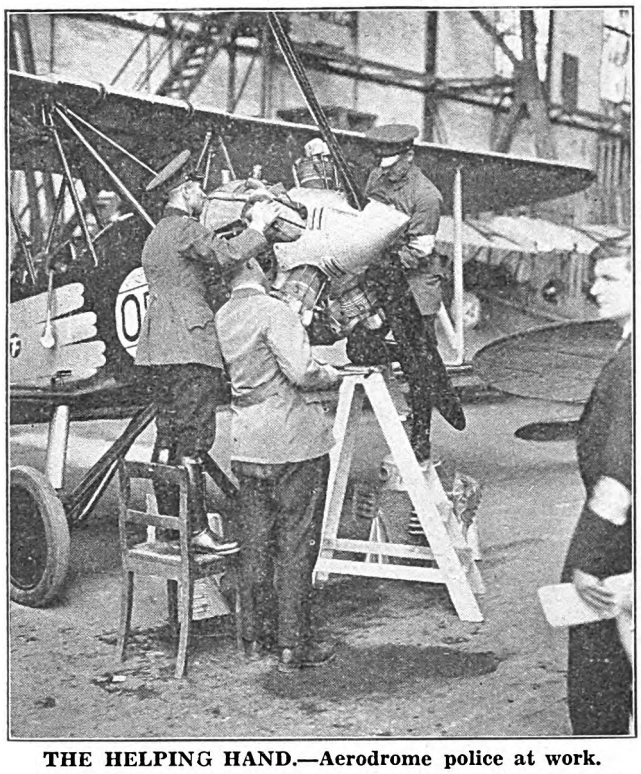
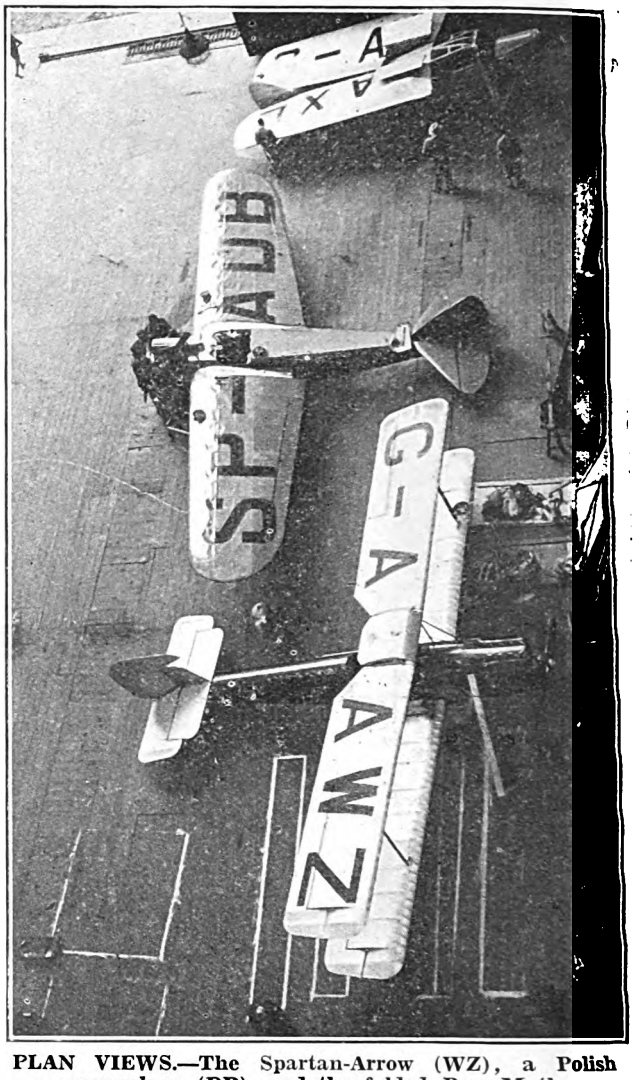


THE HELPING HAND.—Aerodrome police at work.

Then into the argument came Herr Milch, who with Major Wronsky is responsible for all the great successes of the Luft Hansa, and he produced one of the best war-stories one has heard.

Herr Milch, who looks quite a young man to-day, was one of the early war-pilots, and commanded a squadron just across the fighting line from Bailleul, where, under the walls of the famous lunatic asylum, was stationed the squadron in which young Louis Strange was serving. And one day early in 1915 Milch's squadron came over and dropped a bomb right into the ammunition store of our squadron. There was nothing to do about it. The fire could not be put out, so the squadron all sat at a respectful distance and hooted with glee when an extra fine firework went off,—after all, bombs were not much in those days.

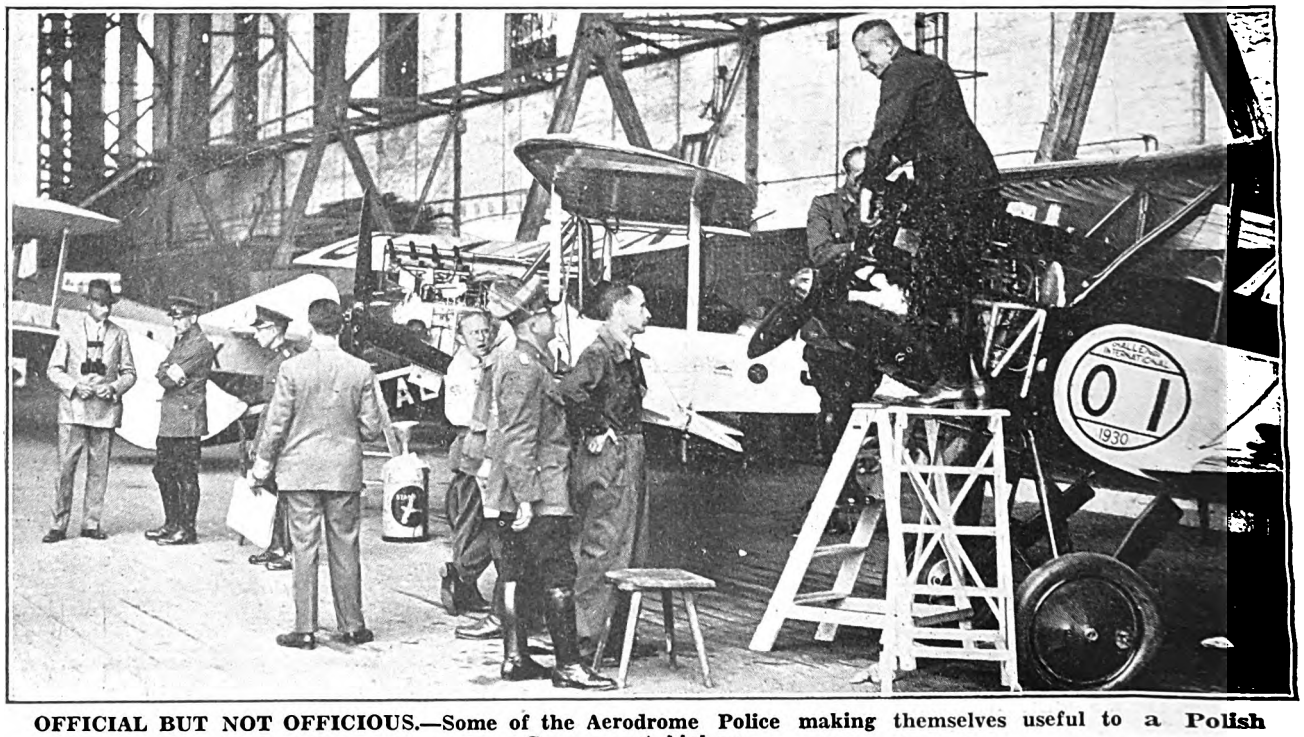
But as soon as possible our squadron got a new supply of bombs (or rather hand-grenades, which they chucked over the side) and started a campaign of reprisals. Day after day they went over and handed out grenades onto sheds and huts and things, till the place simply was not fit to live in, and the German High Command decided that the squadron had better move.



PLAN VIEWS.—The Spartan-Arrow (WZ), a Polish monoplane (DB), and the folded Puss-Moth.

In the middle of the German aerodrome was the usual landing T,—to indicate the official direction for landing. And one day when our raiding party went over they found, instead of the simple T, that Herr Milch and his men had added to it so that it read, TO LET.

And that was when our fool newspapers used to keep on telling us that the Germans lacked a sense of humour. As



OFFICIAL BUT NOT OFFICIOUS.—Some of the Aerodrome Police making themselves useful to a Polish Government biplane.

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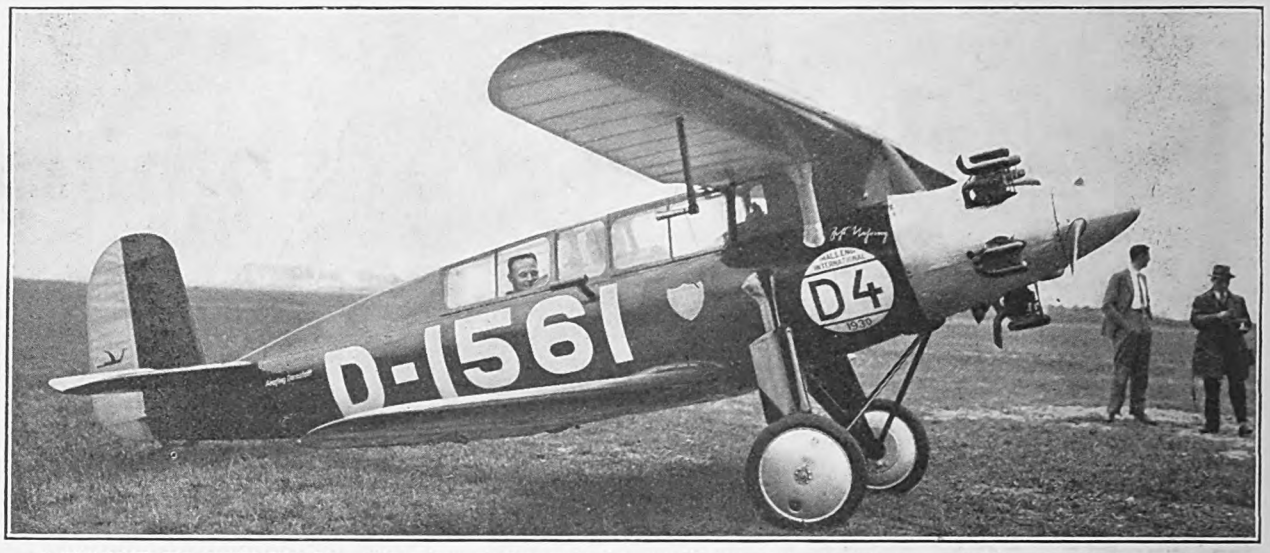

A FRIEND IN NEW GUISE.—The elegant Darmstadter qualifying for marks as a cabin machine,—and no faster in consequence.

a matter of fact, barring the Lowland Scot, nobody has as nice a sense of humour as has the right sort of German.

Altogether it was a good evening. All the English were there. Mrs. Butler, and Mrs. Nigel Norman had flown from Heston in a Puss Moth, piloted by Mr. Norman (just to show it to Berlin) in five hours' flying time, not including lunch at Rotterdam and a visit to the new Koolhoven cabin machine, and tea at Hannover. Col. Strange and Mr. Simmonds had come in a standard Spartan to see that Mr. Andrews wanted for nothing when he got away. And when Sir Sefton Brancker arrived a little late, after he and Mr. Montague had had a forced landing at Potsdam, in a foreign aeroplane, he walked into such a solid phalanx of English people that he asked, "Have you seen any Germans about?"

Actually almost everybody in German Aviation was there, to mention only a few, Dr. Huth, Dr. Tetens, Dr. Madelung, Dr. Beck, Herr von Gronau, were among those whose names one recalls at the moment.

GOOD ADVICE.

On Friday afternoon Herr von Hoeppner had addressed a meeting of all the competitors, to make clear some of the rules, and to advise them on others. But as none of the English competitors understood German, except Miss Spooner, he very kindly went over the whole thing again in English on Saturday.

Certain of the points were quite interesting. For example, —after stating that arrangements had been made for patrols of torpedo-boats and fast motor-boats in the Channel, and in the Gulf of Lions (on the Barcelona-Nimes stage), he announced that before leaving St. Inglevert and Heston and Barcelona competitors would be required to show their life-belts within easy reach, and not stowed away in lockers. Fortunately they will not be required to wear them, for a pilot would hardly be able to work the controls with a safety-belt, parachute harness *and* lifebuoy all on at once.

That Barcelona—Nimes stretch is wicked, and ought not to be allowed. It means flying over about 150 miles of open sea, miles out from the coast. There should have been a turning point on the French-Spanish frontier to force competitors to stick to the coast-line. If nobody is lost at sea on that stage the saving of life will be purely an act of God, and certainly no thanks to the Committee.

Another very bad stretch is that from Pau to Saragossa. Herr von Hoeppner, who has flown over the whole course, says that actually over the Pyrenees it is not so bad, as there are always valleys in which an aeroplane can land though it might never get out. But beyond the Pyrenees there is an area 30 miles across consisting entirely of rocks and sand, without fields or roads or rivers, on which a forced landing would mean a certain crash, and no apparent hope of rescue, because there seems to be no human habitation on it. And there is a similar bit of country between Saragossa and Barcelona.

The rest of Europe seems to be a perfect garden compared with it. The puzzle is why the Committee ever chose that route. Why did they not go from Paris to Bordeaux, Biarritz and San Sebastian and over the Pyrenees by the regular air route to Madrid?

Herr von Hoeppner also advised pilots not to stop at Saragossa for the night, if they could make the next stage in the day. There seem to be no hotels in Saragossa,—or if there are they are uninhabitable (or perhaps over-inhabited). Possibly Saragossa is hostile to aeroplanes as the result of a certain article in this paper which was entitled "Mariposa."

A point that was cleared up concerned the enforced delays at Pau and Lausanne. As originally published the rules

SLIM LINES.—The Darmstadter facing the shed at Staaken. The movie back-cloth can be seen inside.

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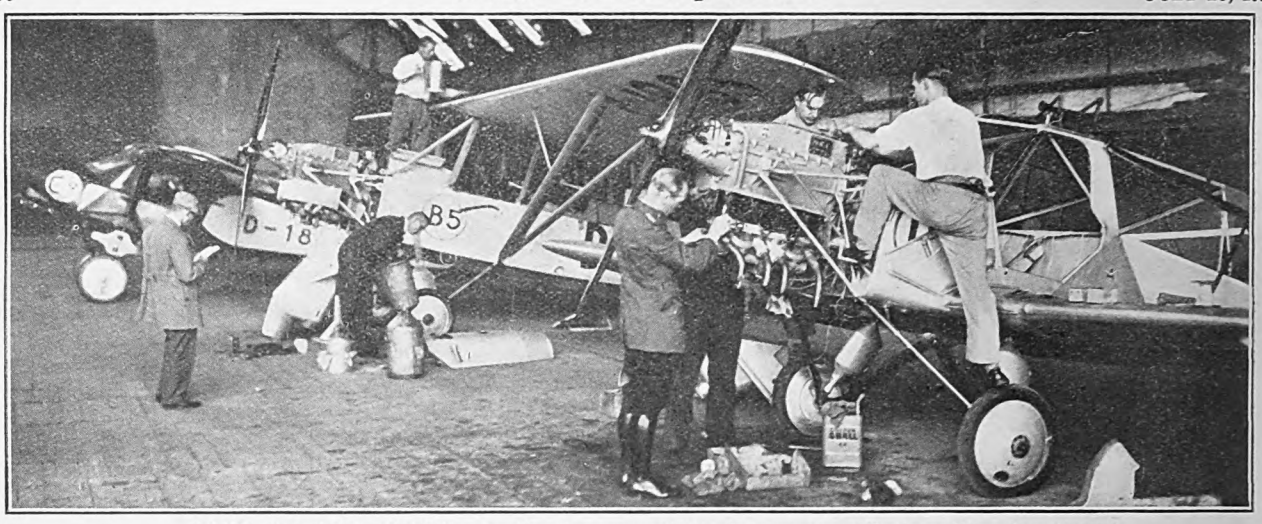


SOME OF OUR HOSTS.—In the foreground the four-seater Albatros (hanging Argus).

seemed to say that competitors must not arrive at either place before a certain day, so as to assure fast and slow competitors flying in more or less the same weather. The later interpretation is that competitors may arrive at those places as soon as they like, but must not leave before 07.00 hrs. on the dates fixed.

GETTING READY.

On Friday afternoon heavy rain began and poured steadily for about ten hours, but all the competitors were busy fettling up their machines and nobody minded much.

One of the minor amusements of the day was measuring up the luggage capacity. The machines get good marks for capacity, whether the luggage is carried or not. So Mr. J. F. Kennedy, of the Revelation suitcase firm, did great trade supplying competitors with fibre cases which when measured full open would hold clothes for a month and when compressed actually held a tooth-brush and a suit of pyjamas, and weighed nothing and went into the smallest locker.

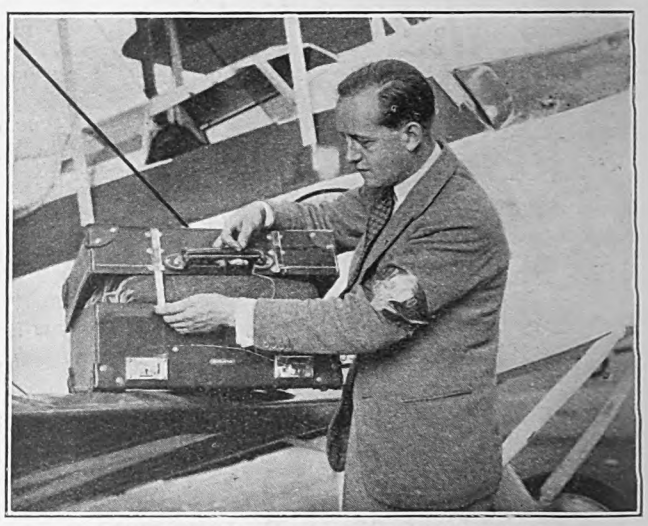
Incidentally Mr. Kennedy deserves the thanks of the British competitors for acting as interpreter, guide-book, and transport manager. His help is hereby gratefully acknowledged.

When one left London on Wednesday, Miss Spooner was trying to find a passenger.—Just imagine a free seat on a flight like this going abegging. At the last moment Capt. Lamplugh, of the British Aviation Insurance Group bethought himself of his representative in Berlin, Mr. A. G. Haward, an officer of No. 600 (City of London) (Bombing) Squadron, R.A.F. So Miss Spooner flew over alone, and was joined by Mr. Haward in Berlin.

Their machine is the Moth which Mr. Broad flew in the last Tour, but with a new Gipsy II motor and entered by Sq. Ldr. the Rt. Hon. F. E. Guest. The coupé top was built to fit him and his engineer sitting on thin cushions. Miss Spooner and Mr. Haward are several sizes larger and are sitting on parachutes. So a wad of sorbo-sponge sheet was requisitioned from the all-comprehensive store of Herr Friedrich, the Moth agent at Tempelhof, to preserve the pilot from concussion on the voyage.

Lady Bailey is flying her own Gipsy Moth with slots. It is the only slotted machine in the English team, but one of the Spanish Moths also has slots.

Mr. Butler is flying the Moth (Gipsy II) in which he did fastest time in the King's Cup Race, but with bigger wheels.



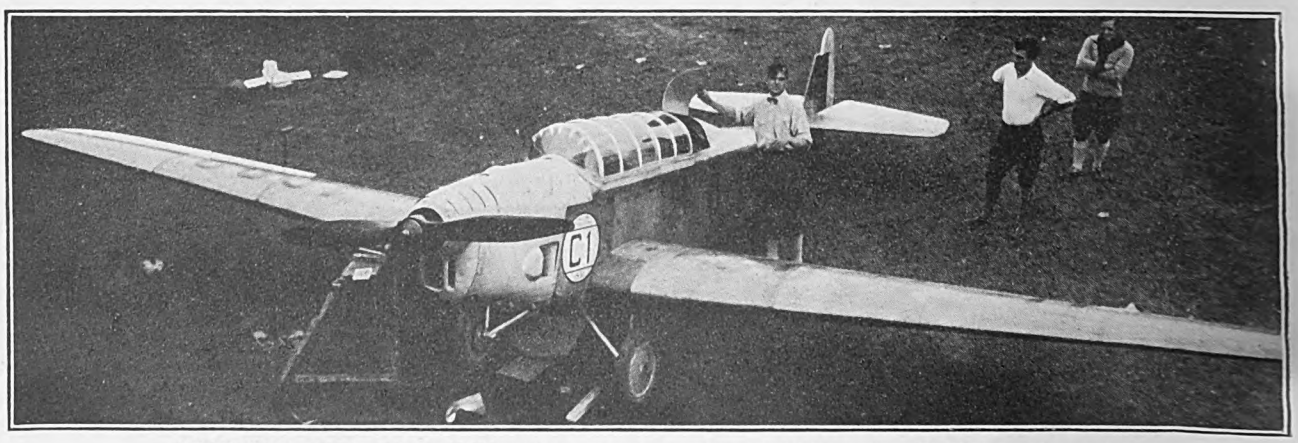
A REVELATION.—Mr. Broad and his suit-case.

The night before the race Mr. Butler, one of the most painstaking of pilots, sat up late checking over his maps against the official papers which give the compass-bearings on the various stages,—and, being a Master Mariner and a qualified Air Navigator this was very much his line of business. Mrs. Butler told one at the start that he had found several grave errors in the official figures. In one place 73 degrees had been mis-typed as 37, and in another there was an error of 30 degrees. Let us hope that other pilots discover the mistakes. If not we may find somebody trying to fly the Atlantic instead of the Gulf of Lions.

Mr. Andrews is flying a new Spartan Arrow with Clark Y section wings and a Cirrus III engine. It is a neat-looking job, and evidently has a good turn of speed

Mr. Thorn is in an Avian Sports, with a Hermes. It gets off like a rocket and is very fast. If he refrains from going for speed records all the way he ought to do well.

Mr. Broad is in a more or less standard Moth with a Gipsy II, with his passenger under a celluloid hood, and a



COMFORT AND ECONOMY.—The miniature Crystal Palace of celluloid on the Klemm.

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1,400 miles *in* one day

DESIGNED expressly to cover long distances at high speed, with comfort and economy, the Puss Moth is early giving proof of its capabilities.

This trip was undertaken on July 13th by the test pilot and the secretary of The de Havilland Aircraft of Canada, Ltd. Leaving Toronto at dawn, calls were made at Detroit, Madison, St. Paul, Fargo and Grand Forks, and Winnipeg reached before dusk. The total distance covered was 1,400 miles, and the time taken, including all stops, 14½ hours. A 35 m.p.h. head wind was encountered for 150 miles up the Mississippi Valley. In a cable the pilot says "Flight delightfully pleasant and entirely troublefree. Gipsy III engine has now done over 70 hours hard flying without a falter."

This is the first recorded flight between Toronto and Winnipeg.

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Second Fastest Time of 129.56 m.p.h. in the 1930 King's Cup Air Race was made by Mrs. A. S. Butler flying a standard Puss Moth fitted with a 120 h.p. Gipsy III engine.

PUSS MOTH

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and
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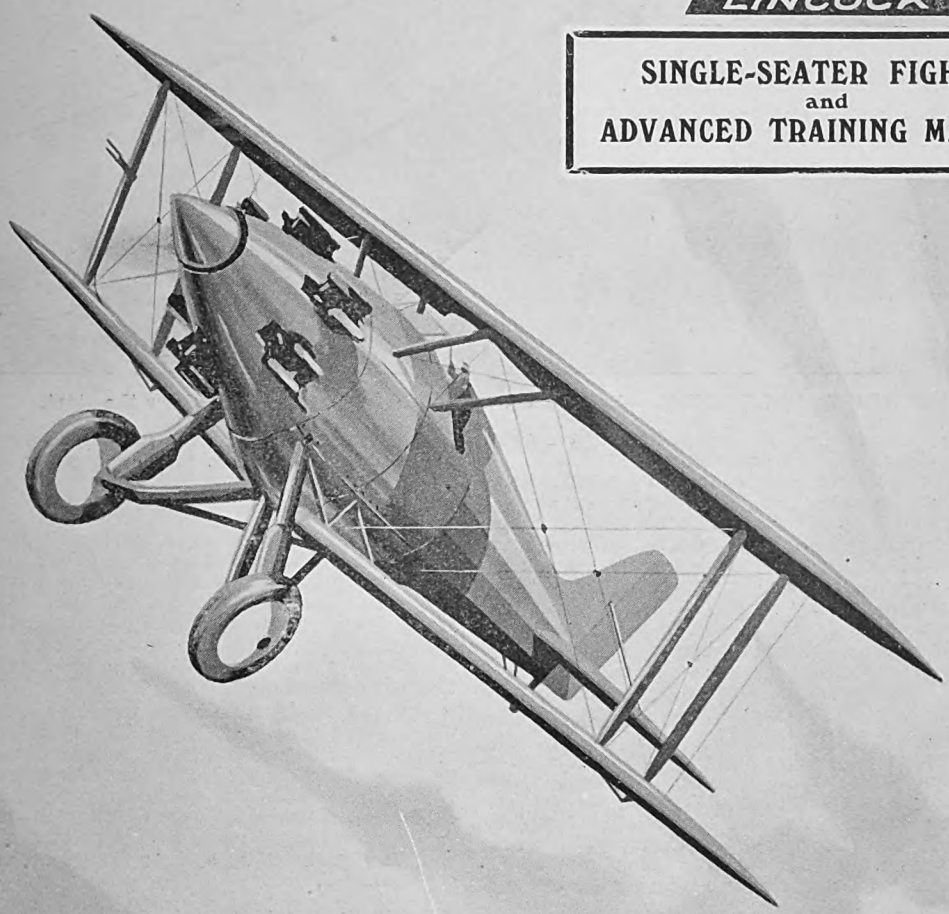

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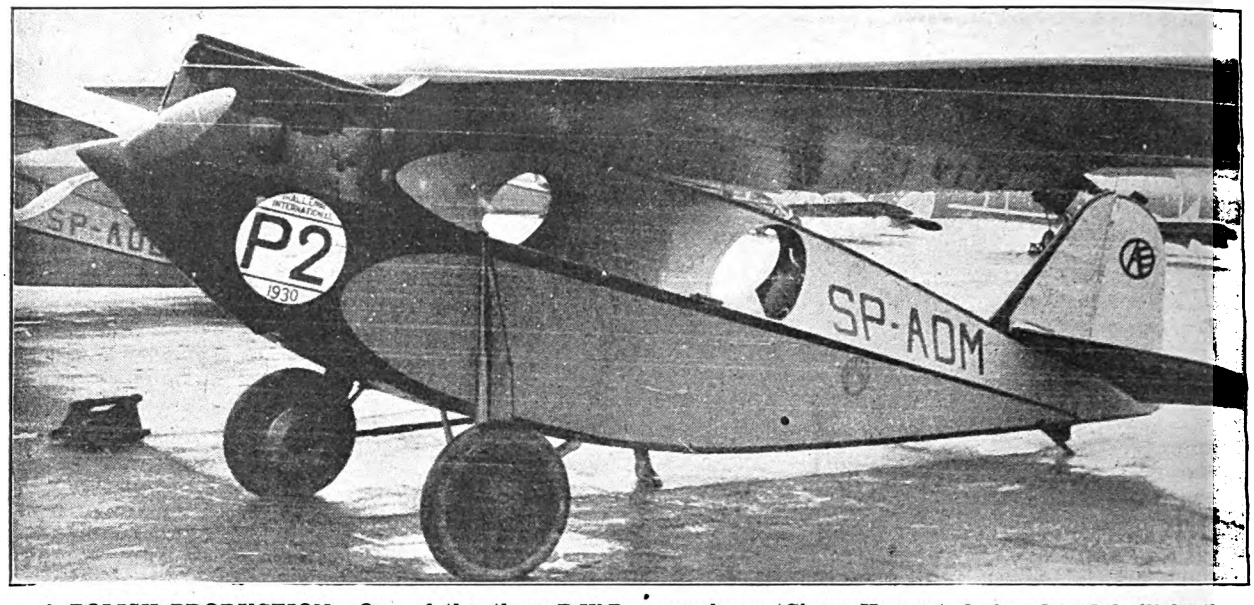

A POLISH PRODUCTION.—One of the three R.W.D. monoplanes (Cirrus Hermes) designed and built by the Aeroklub Rzeczypospolitiej Polskiej.

When one was driving to the aerodrome with Herr Kleffel there was a regular procession of people on foot up the long road from the tram-lines to the air park. And when one commented on the number Herr Kleffel's mother remarked that there would have been a great many more but for the fact that this was school holiday time and there was nobody in Berlin.

At a rough guess one would estimate the crowd in the enclosures at something between 10,000 and 15,000, and there were probably about as many along the roads outside the aerodrome.

When one thinks of that horrible little cattle-pen at Croydon into which one can only penetrate past the back door of a pub, unless one actually goes into the hotel itself and pays accordingly, one is not surprised at the airmindedness of Germany compared with our people in this country. If our Civil Air Authorities would only put a proper enclosure along the top of the hill above the Croydon Aerodrome, where no aeroplane ever lands, and would give free access to it for pedestrians and cars from Purley Way so that the public could look down on the aerodrome and see what is going on, they would be conferring a benefit on British Aviation.—C. G. G.

Below is the full list of starters in the groups as they took off:

No.	Machine.	Pilot.
	Group 1.	
D4.	D.18	Neininger.
K5.	Moth D.H.60	Butler.
O9.	R.W.D.4	Zwirko.
P1.	R.W.D.4	Karpinski.
P2.	R.W.D.4	Bajan.
	Group 2.	
E9.	B.F.W. M.23	Aichele.
K1.	Avro Avian	Thorn.
K3.	Moth	Broad.
K7.	Mono Special	Carberry.
S1.	Breda 15s.	Pierroz.
	Group 3.	
B3.	B.F.W. M.23	Morzik.
C3.	Klemm L.25	v. Freyberg.
C6.	B.F.W. M.23	v. Waldau.
C7.	B.F.W. M.23	v. Massenbach.
E8.	B.F.W. M.23	Krüger.
	Group 4.	
C4.	B.F.W. M.23	Offermann.
C5.	B.F.W. M.23	v. Köppen.
F1.	B.F.W. M.23	Dr. King.
F2.	B.F.W. M.23	Polte.
M2.	Caudron 193	Finat.
	Group 5.	
A8.	Junkers A.50	Roeder.
A9.	Junkers A.50	Ristisz.
E2.	Junkers A.50	Gothe.
L3.	Caudron 193	Arrachart.
M1.	Caudron	Cornez.
	Group 6.	
C8.	Ar. L.IIa	v. Dungern.
C9.	Ar. L.IIa	Peschke.
D1.	Ar. L.IIa	Pasewaldt.
K4.	Arrow	Andrews.
K8.	D.H. Moth	Miss Spooner.
	Group 7.	
A2.	Klemm L.26	Lüsser.
B4.	Ar. L.IIa	Stutz.
T1.	C.A.S.A.	Navarro.
T5.	D.H. Moth	Erzherzog Habsburg.
T7.	Moth	Duque de Estremera.
	Group 8.	
B8.	Klemm L.25	Poss.
B9.	Klemm L.25	Dinort.
C1.	Klemm L.25	Notz.
K6.	Moth	Lady Bailey.
L2.	St. Hubert	Maus.
	Group 9.	
M6.	Caudron C.232	de Mac-Mahon.
O.1	P.Z.L.5	Gedgowd.
O2.	P.Z.L.5	Orlinski.
O6.	P.W.S.50	Babinski.
O8.	P.W.S.52	Rutkowski.
	Group 10.	
D5.	Klemm 25	Spenglev.
E1.	Klemm 25	Benz.
E6.	Klemm L.26	Siebel.
L1.	Mauboussin	Fauvel.
P5.	R.W.D.2	Muslewski.
	Group 11.	
2D.	Ar. L.100	v. Oertz.
O5.	P.W.S.8	Dudzinski.
O7.	P.W.S.51	Lewonjewski.
P3.	R.W.D.2	Plonszynski.
P4.	R.W.D.2	Wieckowski.
	Group 12.	
B5.	Alb. L.101	Stein.
B7.	Klemm L.25	Osterkamp.
D7.	Klemm L.25	v. Gravenreuth.
D8.	B.F.W. M.23	Böhning.
S2.	Klemm L.25	Kolp.

AT THE HESTON CONTROL.

The weather, which had prevented any of the competitors in the *Challenge Internationale de Tourisme* from leaving St. Inglevert on Sunday night, remained bad for most of Monday morning. Not until nearly noon did word come through that some fourteen machines had left for Bristol, and the visibility was still reported bad south of that city.

Soon after 15.00 hours Mr. Alan Butler's Moth appeared out of the driving rain with a good following wind on his heels. He went to lunch immediately, after giving instructions that the slack fabric in his lower wing be doped to tighten it up. He reported Lady Bailey on her way from Bristol, and also said that he ran easily into St. Inglevert on Sunday night to find that Mr. Broad had sneaked in a minute or two ahead and won the control prize. Even with that on his conscience, Mr. Broad was sleeping when most of the British contingent left for Bristol. Mr. F. W. Amos, who rides in the sun-parlour of Mr. Butler's Moth, said that visibility was good over the English Channel but became very bad inland, so that they had to fly low and were most severely bumped.

A few minutes after the first arrival, Mr. S. A. Thorn came in with his Avian (Hermes), and close behind him Mr. John Carberry, in the smart yellow-and-black Monocoupe (Warner Scarab, 110 h.p.). The Scarab was proving hard on petrol, and had forced him down south of Bath, where he got a gallon or two from a farmer to take him to Bristol. He explained that this heavy consumption and intermediate landings cut down his speed so drastically that he questioned the use of going on.

But for that the Monocoupe was a likely contender, as it would get marks for side-by-side seating, parachutes (Irvin), cabin, wheel brakes, and a number of other features. The Scarab, with Townendish ring, gave it a turn of speed that would easily have averaged the necessary 108 m.p.h. under normal conditions. No competitor gains extra marks for averaging more than the 108 but the head winds which ruled from St. Inglevert to Bristol prevented the best of them from doing it.

Miss Spooner came in next, and the many supporters of the British contingent began to feel superior. The first foreign machine was M. Constant Plessis, flying a Caudron low-wing monoplane (Renault 95 h.p.) with his name writ large thereon, of apparently high wing-loading and bi-convex wing section, which made it drop onto the field with some abandon.

A Moth approaching at a spirited speed apprised the watchers that Mr. Broad had waked up. Unfortunately his tank had sprung a leak, which sprayed him with petrol for the last hour or so and prevented his going on that day.

The next arrivals were German, two B.F.W. low-wing monoplanes with Siemens Halske and Argus motors respectively and cabin covers to the tandem cockpits. Like all the other German entrants, the two passengers were out of their seats and sitting on a wing with book in hand ready to leap for the control tent as soon as the taxying speed fell below their running ability. One had the impression that it was all calculated as mathematically as that.

The instruments in these two machines appeared to be very complete and well arranged, and the Argus inverted

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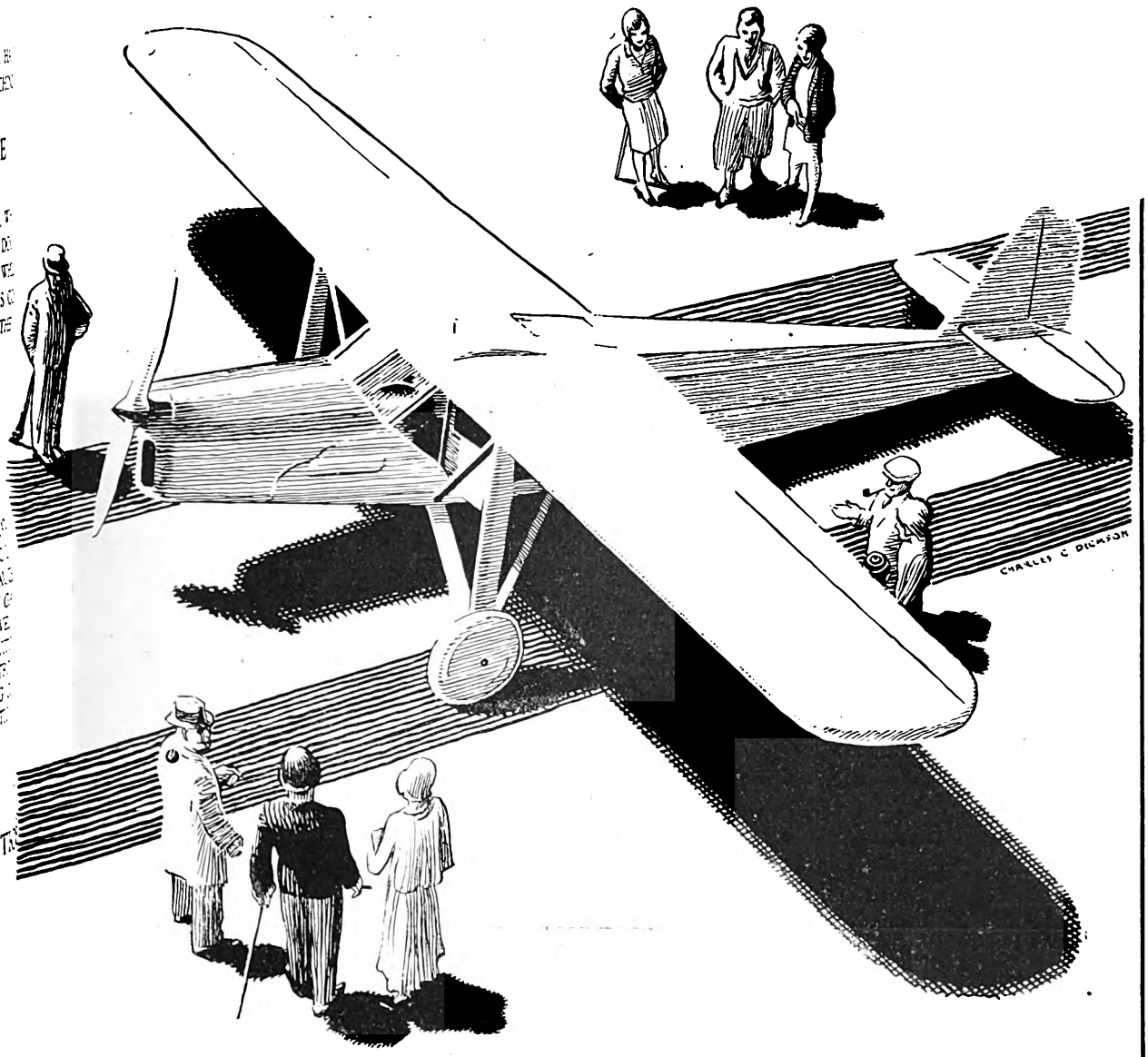

OF ANY AGE

CROYDON AERODROME, SURREY

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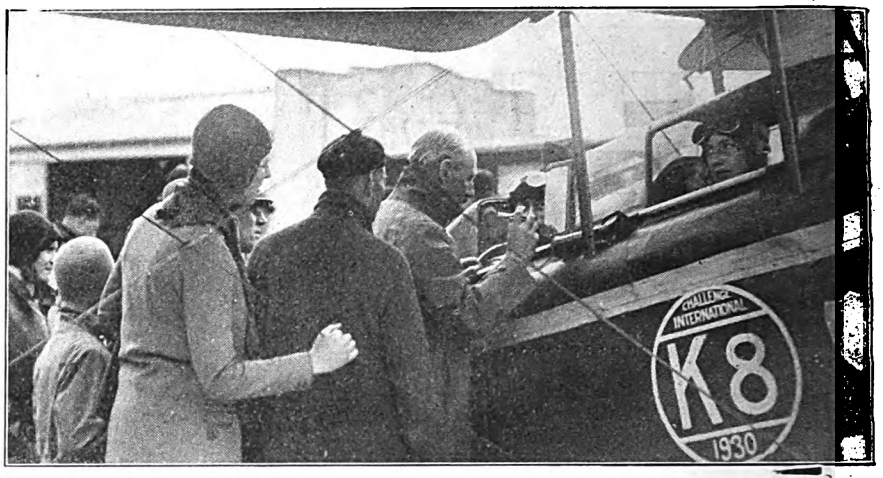
trailing edge surface rather gave away its fabric nature by flapping in a manner quite foreign to mahogany. However, the stewards fell on it and inventoried its every intimate detail, what time petrol was being poured in in quantity. It got away very soon, and caused rather a heart-flutter by seeming to climb very lumbrously over the hedge and labour upwards with difficulty.

Then M. Finat landed another Caudron. These machines have a cockpit cover device whereby the pilot, by means of zippers, closes himself in round the throat as if in a Turkish bath. Presumably he must un-zip if he wishes to check his air speed or scratch his nose. His team-mate, Arrachart, had already gone when he pulled up.



Miss Spooner and Mrs. Butler leaving Heston. Sq. Ldr. Guest and Mrs. Nigel Norman bidding them farewell.

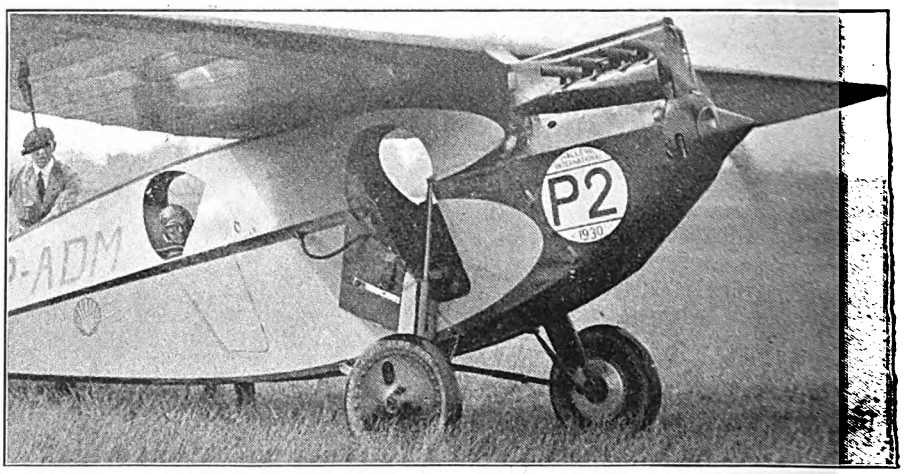
A leading German competitor filling up at Heston.

The next arrival caused interest and some amusement. The Polish R.W.D.4 (Hermes) landed, with pilot and passenger looking through port-holes in its sides. The cabin structure tapers upwards with decidedly concave sides to a narrow top, on which the wing seems precariously balanced without bracing of any sort.

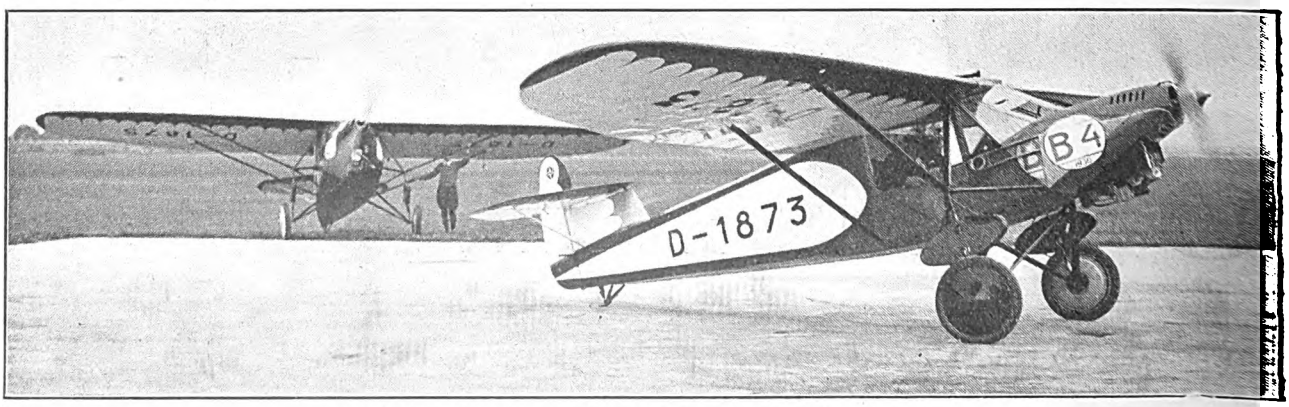
The three R.W.D.'s were nicknamed the "Three Blind Mice," but so far the Heston control has only had the opportunity of seeing how two of them run. Incidentally, they are not half as blind as they look, as one took the opportunity to find out later. The concave sides give plenty of scope, although they also suggest considerable draught.

After Finat had taken off Herr Poss brought in a Klemm (Argus) with his passenger emerging, and ready to drop off as soon as the machine had taxied near enough. Like many more of the German contingent he wore running shoes! Is this accident or thoroughness?

One almost suspects the latter, especially after seeing Herr Lusser win the first event of this kind at Orly two years ago, and inspecting the "guide book" issued for this year's contest. This volume gives every instruction that could conceivably be of use, large-scale maps of all control air-ports, details of courses, customs, etc., and even gives a dictionary of terms useful to an aviator in the language of every competing and visited country. Equivalent national expletives are not included, probably because everyone really prefers to swear in the vulgar tongue of his native land, but one rather expected to see it so explained in words.



Bajan, the leading Pole, with a Cirrus Hermes.



NOVELTIES.—Two of the new Arados (hanging Argus).

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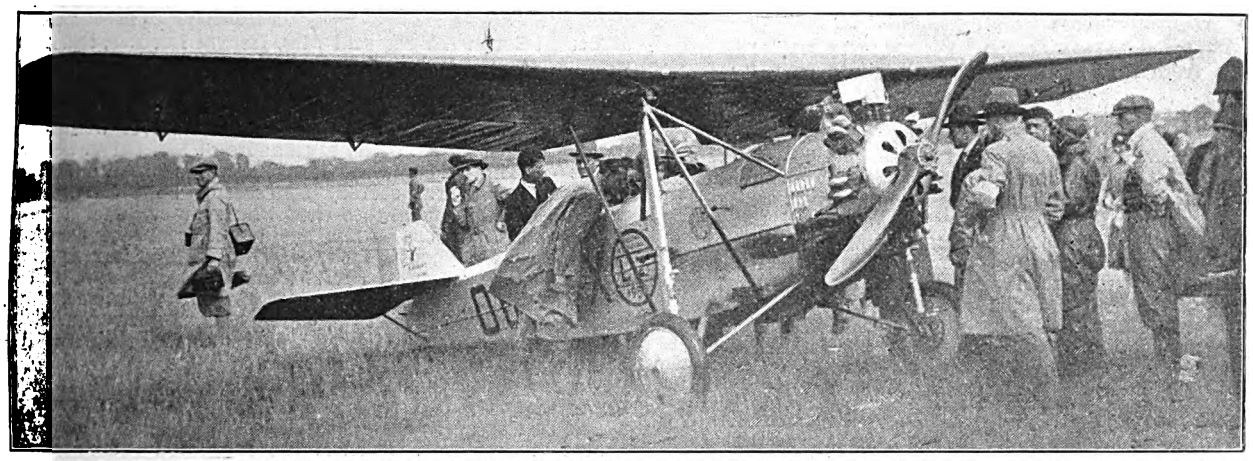


GALLANT LITTLE BELGIUM.—M. Maus in the Comte de Lambilly's St. Hubert at Heston.—("Aeroplane" photograph.)

This Klemm possessed a "cabin" rather reminiscent of the slogan of a well-known automobile firm: "Closed car comfort at open car cost." Anyway, the semi-cylinders of transparent substance which arched over the cockpits telescoped conveniently for ingress and egress and seemed to serve remarkably well.

M. Jean Réné Pierroz came in with a Breda—Swiss version—(Walter 110 h.p.). It has elliptically tipped wings and is without the flap gear of the Breda demonstrated here. The Walter radial engine gives rather better forward view. M. Pierroz and his passenger wore Italian parachutes. Señor Ansaldo also landed, with a Gipsy-Moth of Spanish registry, and they both left very soon after.

The second of the Blind Mice caused excitement and some consternation. M. Zwirko swung abruptly round after landing and narrowly missed a restful Moth in his haste to clock in. After navigating past it he revved up again and seemed to be trusting to his wheel brakes more than the spectators were prepared to. They scattered, but when he was evidently about to ram his compatriot someone reached up for his wing and swung him more or less innocuously into the Shell petrol wagon. He damaged his wing-tip very slightly, but the narrowness of the wing attachment put a heavy strain on the fuselage, and necessitated repairs to a cracked longeron.

Three Arados (Argus) came in quick succession, piloted by Herren Pasewaldt, Peschke and Stutz. They caused intense interest by their side-by-side seating, unusual shock-absorbing devices, of a bow and arrow species, and especially the suspension of the control column from the roof of the cabin. This first appeared in the Grade parasol monoplane in Germany, and has since been tried in America. It has points, in that it keeps the stick out of the way of legs, but it was new to most of those present. All the same the Arado is not graceful,—it looks too much like a camel, with its long legs and cocked-up head. All three got away promptly and climbed well.

Senor Haya brought in a C.A.S.A. (Gipsy) and Herr Osterkamp a Klemm (Salmson) with neat Townend ring. The even distribution of oil over the cowling behind certainly seems to indicate greater organisation of the air-flow.

The Archduke Antoine of Habsbourg-Bourbon flew in a Gipsy-Moth under Spanish colours, and Herr Risztics arrived in the first of the Junkers Juniors (Genet).

By now the departures were outnumbering the arrivals. Some competitors were evidently counting on the following wind to get them to St. Inglevert before the prescribed hour of 20.00. Two more Klemms (Argus) came in, one of them piloted by Herr Lusser, the winner of the 1928 contest. A Klemm (Genet) also arrived and a Klemm (Siemens).

The last in was Herr Neininger and the Darmstadt cantilever biplane which he brought down in the most perfect of landings. He had been detained by an enforced stop for petrol when most of his stock siphoned out of the tank. The small wing area of this machine led one to remark to Herr Kronfeld that it had poor soaring possibilities, whereupon he countered neatly by showing how it owed its design almost entirely to what had been learned from sailplanes.

In all, 31 competitors landed and 23 took off again. Of the remaining eight Mr. Broad stayed for tank repairs and M. Zwirko for wing and fuselage repairs.—F. D. B.

ARRIVALS IN PARIS.

The first competitor to reach Paris was Mr. Thorn, at 18.31 hrs., Mr. Butler was second at 18.54 hrs., and Miss Spooner with Mrs. Butler arrived third at 19.00 hrs.

Mr. Broad won the prize offered by the City of Boulogne for the first arrival at St. Inglevert.

The first French pilots to reach Paris were MM. Arrachart and Finat. M. Cornez was reported as arriving after the control closed,—which would be worse for him than if he had stayed at St. Inglevert, because he would be debited with flying all the time between leaving St. Inglevert on Monday and the opening of the Paris Control on Tuesday at 07.00 hrs.

THE KING'S CUP RACE.

The following is the official list of awards for the King's Cup Air Race on July 5:—

The King's Cup, presented by H.M. the King.—Miss Winifred Brown, Avro Avian Cirrus III.

Prizes presented by Lord Wakefield of Hythe.—1st Prize, £200, Miss Winifred Brown, Avro Avian Cirrus III; 2nd Prize, £100, Mr. A. S. Butler, D.H. Moth Gipsy II; 3rd Prize, £50, Mr. Robert McAlpine. Pilot: Flt. Lt. H. R. D. Waghorn, Blackburn Bluebird Mark IV Gipsy I.

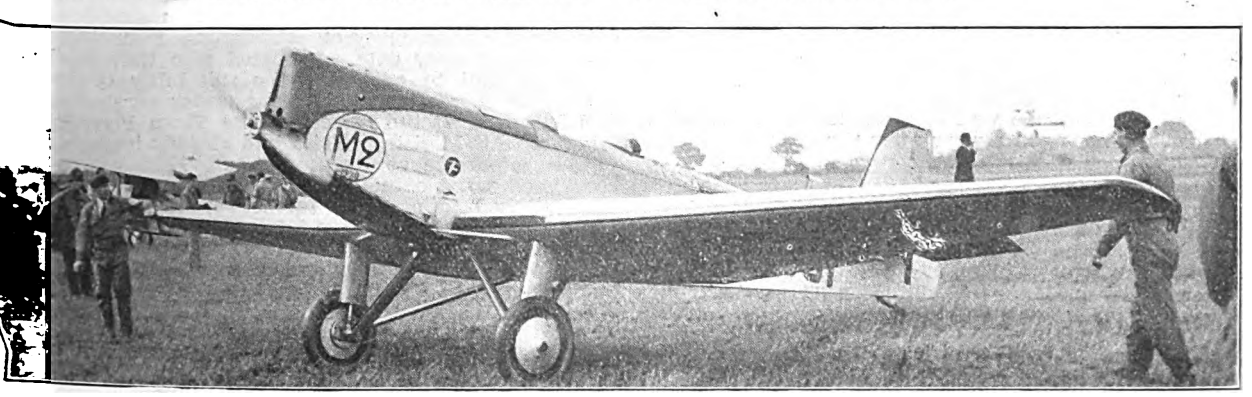
Fastest Time Round the Course.—Bristol Evening Times Cup and £100 presented by Lord Wakefield of Hythe. Mr. A. S. Butler, D.H. Moth Gipsy II, Speed 129.7 m.p.h.

Handicap on Formula.—£50 presented by Lord Wakefield of Hythe. Mr. A. S. Butler, D.H. Moth. Gipsy II.

Best Handicap Time between London and Newcastle-on-Tyne.—1st Prize *Evening World* (Newcastle-on-Tyne) Challenge Trophy and £60, Miss Winifred Brown. Avro Avian Cirrus III; 2nd Prize, £30, Mr. A. S. Butler, D.H. Moth Gipsy II; 3rd Prize, £10, Mr. Robert McAlpine. Pilot: Flt. Lt. H. R. D. Waghorn, Blackburn Bluebird Mark IV Gipsy 1.

Best Handicap Time between London and Hull.—Hull Oil Manufacturing Co. Ltd., Hull, 25 guineas; Premier Oil Extracting Mills Ltd., Hull, 25 guineas, Miss Winifred Brown, Avro Avian Cirrus III.

Siddeley Challenge Trophy presented by Mr. J. D. Siddeley and £50 presented by Mr. M. H. Volk.—Miss Winifred Brown, Avro Avian Cirrus III.



THE GRACEFUL CAUDRON.—M. Finat's Caudron at Heston.—("Aeroplane" photograph.)

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THE SCHNEIDER IMBROGLIO.—II.

This is from *The Times*. Comment would spoil it:—

Rome, July 18.

It is reported in the Press that the Italian Royal Aero Club has refused to take cognisance of the letter from the British Royal Aero Club, and has sent to the Secretary of the Fédération Aéronautique Internationale copies of the Italian entry for the Schneider Trophy contest, and of the British refusal to accept it.

At the same time a letter is said to have been addressed on July 16 to the Fédération Aéronautique Internationale, in which the suggestion is made that the Italian Royal Aero Club should organise a contest for the Schneider Trophy at Venice in 1931. The letter is in the following terms:—

The contents of the letter of the British Aero Club cannot be acknowledged, and still less taken into consideration, by the Italian Aero Club, in so far as they disregard the authority of the Fédération Aéronautique Internationale; whereas, on the other hand, the Royal Aero Club of Italy, being a federated body from its foundation, is determined that the authority of the Fédération Aéronautique Internationale, and of its directing organ, accepted by all the federated bodies, should not suffer from any disregard on the part of anybody. Consequently, the Royal Aero Club of Italy does not intend to discuss the decisions adopted by the general confederation of the Fédération Aéronautique Internationale in the way in which the British Royal Aero Club shows a desire to do.

Enclosed with the present letter, the said Fédération will find the sum of 16,500 francs, representing the payment of the entrance fee, and the guarantees for three Italian machines which the Royal Aero Club of Italy intends to enter in order to take part in the contest for the Schneider Trophy in 1931. Since the Press has published the *communiqué* of the British Royal Aero Club, in which is shown the British preoccupation concerning the organisation of the contest, the Royal Aero Club of Italy makes to the Fédération Aéronautique Internationale a proposal to organise a contest for the Schneider Trophy in 1931 at Venice without requiring the payment of any sum in guarantee at the moment of entry.

Although this letter, which one journal calls noble, is reproduced in all the newspapers, it was stated to-day by an official at the Italian Aero Club that this report must not be taken as official, and that no authorised statements could be issued for the moment.

(*Doubtless to be continued.*—ED.—THE AEROPLANE.)

THE SCHNEIDER TROPHY CONTEST.

In the House of Commons on July 16 in reply to a question by Mr. Horrabin, the Under-Secretary of State for Air said that he understood that only one entry, from Italy, had been received for next year's Schneider Trophy race, by the Royal Aero Club, the body responsible for dealing with entries for the Contest, and that, for reasons which it had already announced in the Press, the Royal Aero Club had been unable to accept the entry as complying with the prescribed conditions. No application for the loan of aircraft had yet been received by the Air Ministry, and the Secretary of State for Air was not prepared to consider whether it would be possible to vary in any respect the conditions already announced until some definite proposals were before him.

In reply to Mr. Hardie, Mr. Montague said that he certainly thought there was value in this race and that the value had been proved in the past.

THE DETLING ACCIDENT.

A Moth, with Miss Gladys Grace and Lieut. E. E. H. Spencer, R.N., on board, crashed at Detling Aerodrome, near Maidstone, at about 16.30 hrs. on July 20. The machine caught fire and both occupants were killed.

Miss Grace and Lieut. Spencer had been lunching with relatives in Chatham and had motored to Detling to fly back to Hamble in Lieut. Spencer's machine in which they had flown over.

Reports state that the machine took off well and circled the aerodrome. The pilot then did a loop and was about to do a second when the machine dived into the ground.

Miss Grace had already had one lucky escape, as reported in THE AEROPLANE for April 22, which said that:—

Miss Gladys Grace of the Hampshire Club, a grand-daughter of the famous "W. G.," had a very lucky escape on Mar. 27 when she spun into the mud of the Hamble River. Apparently Miss Grace stalled the machine on top of a loop. Miss Grace was found conscious in the machine, although the engine and fuselage were deep in the mud.

As usual there seems to be no evidence from experienced aviators on the spot at the time, and the inquest is scarcely likely to tell us more than we know from newspaper reports.

A further comment will appear after the inquest.

THE MEOPHAM ACCIDENT.

On July 21 a Junkers single-engined monoplane, which bore the British registration G-AAZK and belonged to Walcot Air Lines Ltd., was flying over Meopham, Kent, when for some reason yet to be explained it fell to pieces. All the occupants were killed. These were: Lieut.-Col. G. L. P. Henderson, M.C., the pilot; Mr. C. D. Shearing, his assistant; the Marquess of Dufferin and Ava; Viscountess Ednam, daughter-in-law of the Earl of Dudley and sister of the Duke of Sutherland; Sir Edward Ward, Bart., son of the late Sir Edward Ward, who was permanent Under-Secretary of War for several years, and made his name as a supply officer in South Africa; and Mrs. Henrik Loeffler, said to be well known in London Society.

Further comment on this affair will appear in this paper after the inquest.

In the meantime one wishes to add whatever weight THE AEROPLANE possesses to the arguments of Mr. Oliver Stewart in *The Morning Post* when he condemns the Air Ministry's consistent policy of secrecy concerning both Service and Civil accidents, and argues that whatever evidence is available about the cause of the accidents should be published regardless of anybody's feelings, so long as it is reliable.

One is quite aware of the two main objections,—(a) That publication of an opinion without proof may be grounds for a libel action, and (*b*) that publication of proven evidence may conceivably damage the repute of the maker of the machine or the engine.

Neither of these points should count with a Government Department against the help to the progress of aviation which can be given by publishing probable or even possible causes of accidents. Even if the suggested causes are not the true causes, at any rate they suggest something to be avoided in future, and they can, when necessary, be published with due reservations, and merely as suggestions of things to be avoided.

G. L. P. HENDERSON.

G. L. P. Henderson has been one of the most prominent figures in Civil Aviation since the end of the War. During the War he distinguished himself as a fighting pilot and as a formation leader. He was a continual thorn in the side of authority but senior officers recognised his ability as a commander of fighting men. And as a pilot he was good enough for Major James McCudden, V.C., to say in his book that he would follow him anywhere.

After doing various Civil Aviation jobs after the War, including some very valuable work for British Aviation in Sweden, Col. Henderson became one of the first pilots of Daimler Airways Ltd. When Imperial Airways Ltd. was formed he refused to join the firm, but when various pilots of Imperial Airways went on strike in 1924 he became Chairman of their Strike Committee,—and, to his credit be it said, conducted their proceedings in a sensible way.

Later on he started the Henderson Flying School at Brooklands and after selling it to the present proprietors he started up another school of his own at Croydon.

More recently he joined a taxi firm called Walcot Air Lines Ltd., which has been running week-end trips between Croydon and Le Touquet, though so far as one can discover it does not run an air line to schedule as generally understood. The flying stock of the firm consisted of two Junkers monoplanes recently imported from Germany.

G. L. P. Henderson was born just about two hundred years too late. As a Scottish Chieftain somewhere between the rebellion of 1715 and the rebellion of 1745 he would have been magnificent. During the War 1914 he was in his element. In time of peace he was too turbulent for the comfort of others.

He was certainly one of the finest pilots in England, which means one of the finest in the World. He was full of ideas, he was full of enterprise, he had heaps of initiative and heaps of energy. With those qualities and a little less natural combativeness he might have done very well in business for himself and he might even have done more for the progress of aviation. His death may bring quietude in certain official circles in Civil Aviation but it may also remove quite a useful spur.—C. G. G.

MUNICIPAL AERODROMES.

In the House of Commons on July 14, in reply to a question by Mr. Malone, the Under-Secretary of State for Air said that the Air Ministry's attitude to the general question of the establishment of municipal aerodromes had been explained in a circular sent to all town councils, and the terms of that circular were applicable to Northampton as to other important towns. In the circular the Air Council had drawn attention to the increasing development of air traffic and had suggested that each corporation should earnestly consider the advisability of establishing a municipal aerodrome at an early date. It stated also that the Council would be glad to advise on the suitability of any sites which the coporation might have under consideration for this purpose. At the request of the Town Planning Committee an Air Ministry official had already inspected a site for an aerodrome at Northampton. This had not been considered suitable and the Town Planning Committee had been advised to make a further preliminary survey for possible sites and had been informed that the Department would be glad to inspect and advise on any which might be found. No further sites had so far been submitted for inspection.

[An Air Ministry Report of Municipal Aerodrome Progress shows that 7 towns have licensed aerodromes, 4 have purchased sites, 13 are negotiating for the purchase of sites, 9 have reserved sites in their Town Planning schemes and 48 have had sites inspected.]

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THE ROYAL AIR FORCE.

The London Gazette.

Air Ministry, July 15.

ROYAL AIR FORCE.

GENERAL DUTIES BRANCH.—Plt. Off. on probation D. H. V. Craig is confirmed in rank (June 26). The following Plt. Offs. are promoted to the rank of Flg. Off.:—(June 15)—F. L. P. Henzell, R. C. Jonas. (June 23)—E. Esmonde, A. E. V. Mathias, A. T. Orchard.

Plt. Off. W. D. Butler is promoted to the rank of Flg. Off. (Jan. 30, 1929). (Substituted for the notification in the *Gazette* of June 21, 1929.)

Sq. Ldr. J. S. T. Fall, D.S.C., A.F.C., remains on half-pay, scale B. (Aug. 1 to Sept. 30 inclusive).

The following are placed on the retired list:—Sq. Ldr. A. G. Weir (July 11); Flt. Lt. R. W. Edwards (July 15).

The following relinquish their S.S. comns. on completion of service (July 14):—Flt. Lt. C. W. Croxford, D.S.C., Flg. Off. (Hon. Flt. Lt.) G. Anderson. Lt.-Cdr. R. O. Allen, R.N., Flg. Off., R.A.F., ceases to be attached to the R.A.F. on return to Naval duty (July 1).

STORES BRANCH.—Flg. Off. W. H. Bowden is placed on the retired list (July 15).

MEDICAL BRANCH.—Sq. Ldr. H. J. Procter, L.D.S. (Major, Army Dental Corps), relinquishes his temp. comn. on return to Army duty (July 2).

RESERVE OF AIR FORCE OFFICERS.

GENERAL DUTIES BRANCH.—The following are granted comns. in Class A.A. ii as Plt. Offs. on probation:—E. L. Briggs (June 25); J. C. Corby, R. E. Cowburn (June 30); R. S. Gleadow (July 1); W. L. Garstang, G. P. Moss, A. G. P. Way (July 2); R. F. Egford, J. H. Edge (July 3). P. W. J. Pharazyn is granted a comn. in the Special Reserve as a Plt. Off. on probation (May 31).

The following Flg. Offs. relinquish their comns. on completion of service:—C. E. V. Graham, M.C. (May 8); C. L. Atkinson (June 19). Flg. Off. H. H. Storrs relinquishes his comn. on completion of service, and is permitted to retain his rank (June 23).

AUXILIARY AIR FORCE.

GENERAL DUTIES BRANCH.—No. 602 (CITY OF GLASGOW) (BOMBER) SQUADRON.—The following to be Plt. Offs.:—T. B. Smith (June 13); G. C. Philips (June 22).

No. 604 (COUNTY OF MIDDLESEX) (BOMBER) SQUADRON.—The following to be Plt. Off.:—R. Smallman-Tew (June 21).

Appointments.

GENERAL DUTIES BRANCH.—Group Captain A. H. Jackson, to H.Q., Coastal Area, 15/7.

Squadron Leaders R. B. Munday, D.S.C., A.F.C., to H.Q., Coastal Area, 8/5. H. G. White, to R.A.F. College, Cranwell, 1/7.

Flight Lieutenants S. Graham, M.C., to School of T.T. (Men), Manston, 1/7. M. W. C. Ridgway, to R.A.F. Base, Calshot, 1/7. D. C. Prance, to No. 209 Sqdn., Mount Batten, 1/7. F. Boston, to No. 1 School of T.T. (Apprentices), Halton, 1/7. F. C. Rowland, to Station H.Q., Andover, 1/7. E. E. Fallick, to No. 1 School of T.T. (Apprentices), Halton, 1/7. C. C. Bazell, to H.M.S. *Courageous*, 16/7. F. H. Whitmore M.B.E., D.S.C., to H.M.S. *Courageous*, 16/7. C. J. Collingwood, to H.Q., Wessex Bombing Area, Andover, 7/7. R. J. A. Ford, to No. 15 Sqdn., Martlesham Heath, 6/7. J. E. W. Bowles, to No. 33 Sqdn., Eastchurch, 11/7. H. I. Cozens, to School of Photography, S. Farnborough, 3/7. C. W. Croxford, to R.A.F. Depot, Uxbridge, 11/7. D. V. Carnegie, A.F.C., to R.A.F. Base, Calshot, 17/7. V. H. Clift, to R.A.F. Base, Calshot, 13/7. J. G. D. Armour, to No. 24 Sqdn., Northolt, 15/5.

Flying Officers J. F. Griffiths, to Aircraft Park, India, 23/6. R. G. Hennessy, D.S.O., M.C., to No. 2 A.C. Co., Transjordan, 1/7. A. W. Hunt, to R.A.F. Base, Calshot, 16/7. N. B. Norris, to No. 216 Sqdn., Heliopolis, 3/7. R. F. Shenton, to Home Aircraft Depot, Henlow, 23/5. W. L. Bateman, to R.A.F. Base, Calshot, 7/7. W. G. Abrams, to H.A.D., Henlow, 23/5. S. L. Blunt, to A. and A.E.E., Martlesham Heath, 9/7. D. J. Harrison, to R.A.F. Depot, Uxbridge, 18/6. A. W. Elias, to No. 1 School of T.T. (Apprentices), Halton, 1/7. J. A. Hawkings, to R.A.F. M.T. Depot, Shrewsbury, 1/7. J. D. Greaves, to R.A.F. Reception Depot, West Drayton, 1/7. R. J. Clare Hunt, to A. and G. School, Eastchurch, 1/7.

Pilot Officers Lord Malcolm Douglas Hamilton, to No. 603 Sqdn., Edinburgh, 15/7. P. G. Harton, to No. 2 F.T.S., Digby, 8/7. The undermentioned are all posted to No. 2 F.T.S., Digby, with effect from 12/7:—P. S. Ball, J. W. Bateman, R. B. Brown, J. E. F. Chapman, G. J. S. Chatterton, M. V. M. Clube, A. R. Collins, E. J. Gracie, R. G. Harman, I. B. Hills-Spedding, W. E. Hooper, R. L. Hoyle, A. J. McDougall, H. W. Mermagen, J. B. S. Monypenny, D. G. Morris, G. N. Snarey, G. G. Stead, N. C. M. Styche, M. R. D. Trewby, A. E. Upchurch, R. Wardrop.

MEDICAL BRANCH.—Flight Lieutenant G. A. Ballantyne, D.F.C. (Dental), to R.A.F. Depot, Uxbridge, on appointment to a Perm. Comn., 1/7.

Flying Officer F. B. Sumerling (Dental), to Medical Training Depot, Halton, on appointment to a S.S. Comn., 9/7.

STORES BRANCH.—Wing Commander W. E. Aylwin, to No. 1 Stores Depot, Kidbrooke, 3/7.

Squadron Leader F. E. J. Coates, to H.A.D., Henlow, 10/7.

Flight Lieutenant J. S. Browne, A.F.C., to H.Q., Wessex Bombing Area, Andover, 21/7.

Flying Officer N. W. Law, to School of Army Co-operation, Old Sarum, 1/8.

ACCOUNTANT BRANCH.—Squadron Leader R. Byrne, M.C., to H.Q., Wessex Bombing Area, Andover, 9/7.

Flight Lieutenants O. K. Griffin, to A. and A.E.E., Martlesham Heath, 18/7. E. V. Humphrey, to Station H.Q., Hornchurch, 22/7. R. G. Dyer, to No. 2 F.T.S., Digby, 23/7.

Flying Officer K. A. Jackman, to Station H.Q., North Weald, 30/7.

CHAPLAINS' BRANCH.—The. Rev. A. W. Brown, to R.A.F. Depot, Uxbridge, 26/5.

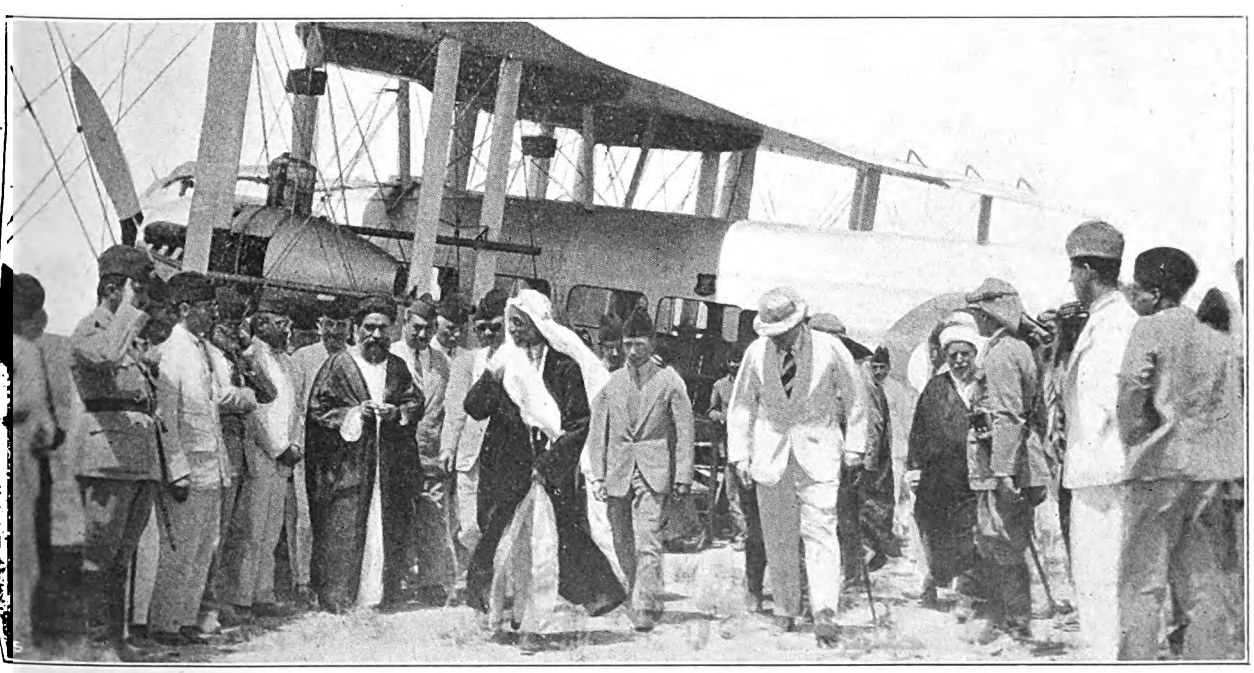
The Higher Command.

The following announcement has been made by the Air Ministry:—

Air Vice-Marshal Cyril Louis Norton Newall, C.B., C.M.G., C.B.E., A.M., now Director of Operations and Intelligence, Air Ministry, and Deputy Chief of the Air Staff, to be Air Officer Commanding, Wessex Bombing Area, Air Defence of Great Britain, in February, 1931, *vice* Air Vice-Marshal Sir John Miles Steel, K.B.E., C.B., C.M.G., on the latter assuming command of the R.A.F. in India.

Air Vice-Marshal C. L. N. Newall was born in 1886 and was educated at Bedford College and at the Royal Military College, Sandhurst. He entered the Royal Warwickshire Regiment in 1905 and transferred to the 2nd K.E.O. Gurkhas in 1909. He served in the Zakka Khel Expedition of 1908.

He learned to fly on a Bristol biplane on Salisbury Plain



ROYAL TRANSPORT.—The arrival in Baghdad on June 24, 1930, of ex-King Ali of Trans-Jordania, who is acting as Regent of 'Iraq during the absence in Europe of his brother, King Feisal of 'Iraq. The Regent flew **to Baghdad in a Vickers Victoria of No. 70 (Bomber) Squadron, R.A.F.**

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and his Royal Aero Club certificate, No. 144, is dated Oct. 3, 1911. On the outbreak of War in 1914 he was one of a small group of officers belonging to the newly-formed Indian Flying Corps and was immediately posted to one of the squadrons of the R.F.C. forming at home.

In 1915 he was in command of No. 12 Squadron at St. Omer and later on he was appointed to command a Brigade. In January 1916 he was awarded the Albert Medal for conspicuous bravery. The incident is described in Maurice Baring's book *R.F.C. H.Q.*, 1914-18, as follows:—

On January 3, while the General and I were out Squadron visiting, the bomb store on the aerodrome, which was crammed with explosives, caught fire: Newall, who commanded the Squadron on the St. Omer aerodrome (No. 12), saw the smoke, and with one corporal, broke into the shed from the outside and put out the fire. Some of the small incendiary bombs were already alight. Their boots were burnt. We went up to the aerodrome at once, and found the bomb store still smouldering. Newall received the Albert Medal for this action.

At the time of the Armistice he was commanding the 8th Brigade at Vaux Chateau, with Major-General Sir Hugh Trenchard's Independent Force, R.A.F., with the rank of Brigadier-General.

In the New Year Honours List of 1919 he was appointed a companion of the Order of St. Michael and St. George and in the King's Birthday Honours of 1919 he was made a Commander of the British Empire. He was also awarded several foreign decorations and was three times Mentioned in Despatches.

On his return from France in 1919 he was appointed Chief Staff Officer of the South-Eastern Area and was later appointed Deputy-Director of Personnel at the Air Ministry. During 1923 and 1924 he was Air Aide-de-Camp to His Majesty the King. In January 1925 he was promoted to the rank of Air Commodore and appointed Air Officer Commanding the Special Reserve and Auxiliary Air Force.

After a period in which he was employed on special duty with the League of Nations Disarmament Committee he was appointed Director of Operations and Intelligence at the Air Ministry and Deputy-Chief of the Air Staff in April 1926.

He was appointed a Companion of the Order of the Bath in the King's Birthday Honours List of 1929. In January 1930 he was promoted to the rank of Air Vice-Marshal and made an additional Member of the Air Council.

A Fatal Accident.

The Air Ministry regrets to announce that as the result of an accident at Sutton Bridge, Lincoln, to a Gamecock machine of No. 23 (Fighter) Squadron on July 15, Flg. Off. Peter Bagwell Rogers, the pilot and sole occupant of the aircraft, was killed.

The 1930 Baltic Cruise.

The programme of the Baltic Cruise by No. 201 (Flying-Boat) Squadron, R.A.F., has been fixed provisionally as follows:—

Leave Felixstowe, Sept. 3; Esbjerg-Copenhagen, Sept. 5-7; Copenhagen-Stockholm, Sept. 8-12; Stockholm-Helsingfors, Sept. 13-15; Helsingfors-Reval, Sept. 16-17; Reval-Riga, Sept. 18-19; Riga-Memel, Sept. 20-21; Memel-Puck, Sept. 22-23; Puck-Stockholm, Sept. 24-25; Stockholm-Goteborg, Sept. 26-27; Goteborg-Oslo, Sept. 28-30; Oslo-Esbjerg, Oct. 1; return to Felixstowe, Oct. 2.

No. 201 (Flying-Boat) Squadron is commanded by Sq. Ldr. E. F. Turner, A.F.C., and is the squadron which took part in the R.A.F. Display last month.

R.A.F. Bomb Ranges.

In the House of Commons on July 16, in reply to a question by Lieut.-Cmdr. Kenworthy, the Under-Secretary of State for Air said that he was aware that the White Horse on the Berkshire Downs where the Air Ministry proposed to acquire land for bombing practice, had been scheduled as a national monument, but in the event of the establishment of a range in this area there would not be the smallest likelihood of any damage whatever to the White Horse. Apart from the fact that only smoke bombs would be used, the distance between the outer edge of the bombing area and the White Horse was nearly a mile and a half and the bombing area and the White Horse were on opposite sides of the hill. The whole matter was still under consideration and no decision had yet been reached.

Hunting the Herring.

In the House of Commons on July 15 in reply to a question by Sir Robert Hamilton, the Secretary of State for Scotland said that the experiments made some years ago in the location of herring shoals by spotting from aircraft, had not given very promising results. But he proposed to consult the Secretary of State for Air as to the possibility of making further experiments.

Sir Robert Hamilton said that the system had proved so successful in Iceland that a flying-boat was attached to the herring fleet.

[The truth is that shoals of fish cannot be seen from the air unless the surface of the water is comparatively smooth.]

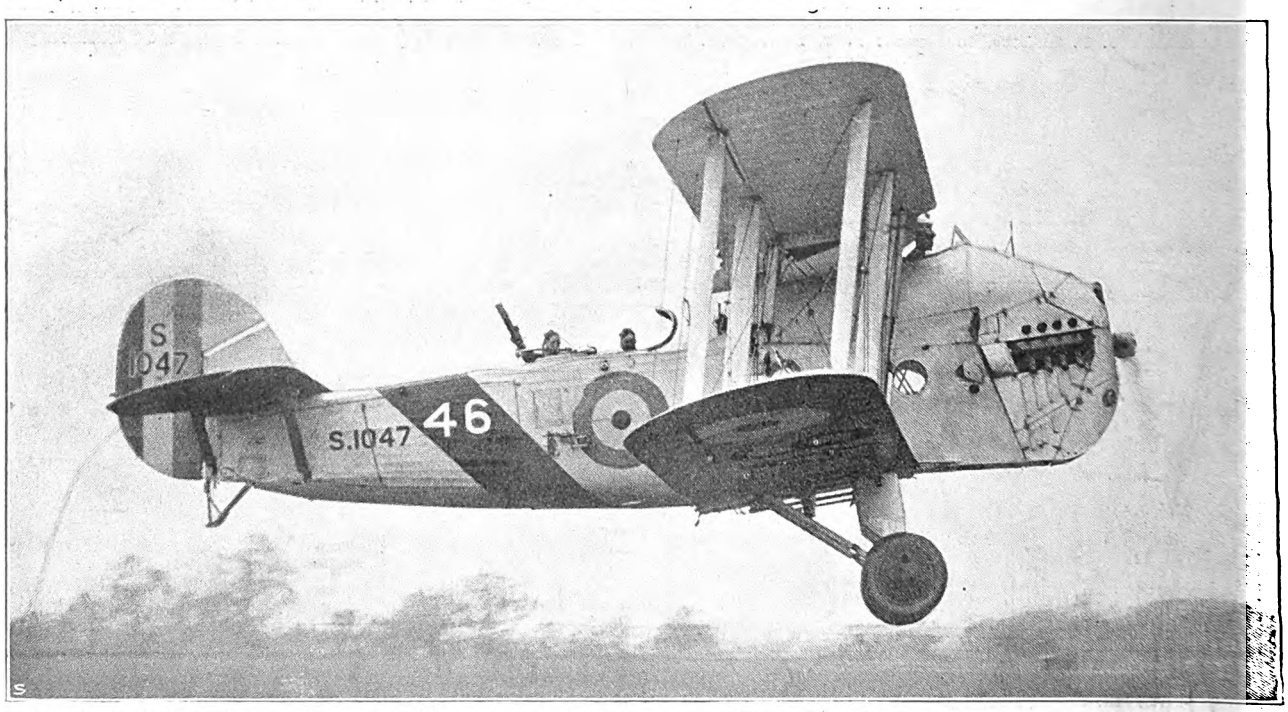
The "Halton Magazine" and the "Daedalus."

Two of the best Service magazines have been combined to make one excellent whole in the *Halton Magazine* and the *Daedalus*. The former originally dealt with the activities of the R.A.F. School of Technical Training (Apprentices) and the latter dealt with the activities of the R.A.F. Old Boys' Association, which is an organisation of those who have been Apprentices in the R.A.F.

In common with its predecessors the new production is well arranged, beautifully printed and full of interesting material.

The idea of combining the two magazines is a very good one because the news from the branches of the Old Boys' Association at Home and Overseas is naturally of interest to those Apprentices who will be posted to those Stations and all ex-Aircraft-Apprentices will be interested to get Halton news.

The latest issue contains a short history of No. 5 Squadron, an article on Tripoli, a memoir of the late Air Commodore E. M. Maitland and the usual Station News and Sports pages.



FLEET FURY.—A Blackburn Blackburn Fleet Spotter Reconnaissance machine (Napier Lion) of the R.A.F. Base, Gosport. This machine is also the equipment of two Flights of the Fleet Air Arm in H.M.S. "Furious."
—("Aeroplane" photograph.)

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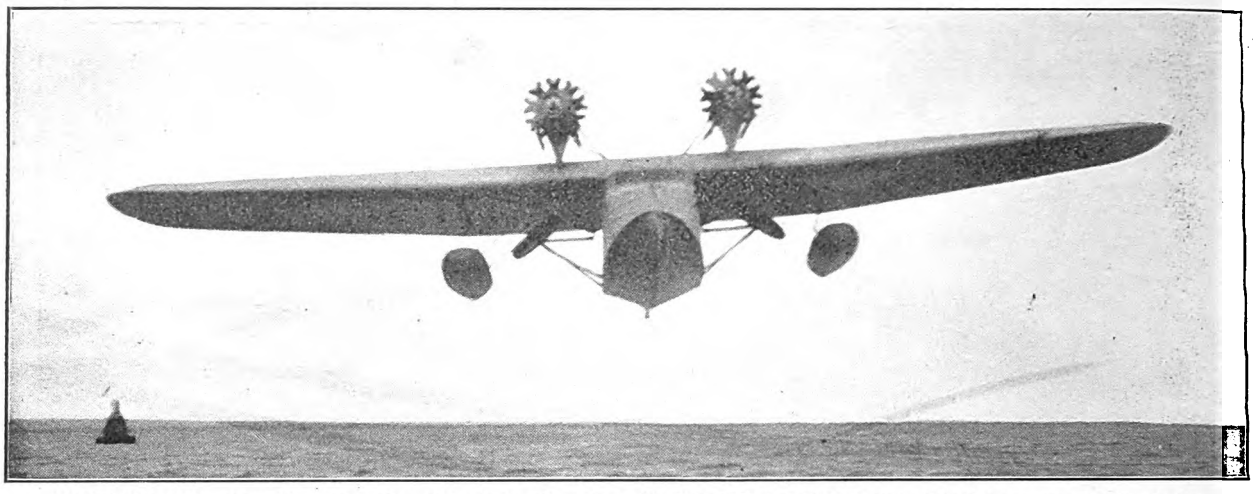
THE SAUNDERS-ROE CLOUD.



WHEELS UP.—The Saunders-Roe Cloud in the air with the wheels pulled up parallel to the float struts.

The Saro Cloud.

One of the most interesting flying-boats at the Aero Show of 1929 was the Cutty Sark, made by Saunders-Roe Ltd., of Cowes. This aircraft was a combination of well-tried features, but as a combination was something quite new among British types. The most outstanding of these features were, and still are, the wooden cantilever monoplane wing and the flat-sided hull made of Alclad sheet.

Part of the policy of Saunders-Roe Ltd. has been the production of a family of flying-boats ranging from one-and-a-half to thirty tons loaded weight. Of these the Cutty Sark is the prototype. The next in size is the Windhover, a five-seat boat.

The third member of the family is the Cloud, a six-to-eight-seat machine, which can have any combination of power units that total about six hundred horse-power. Such combinations are two Lynx Major engines (total 520 h.p.); two Lynx engines (total 450 h.p.); three Lynx engines (total 645 h.p.), or three Mongoose engines (total 450 h.p.).

The Cloud has been specifically designed for the private owner, air-line or taxi-work, joy-riding, as a feeder machine for air-lines, and for expeditions and surveys, where its large available carrying space should be of value in carrying equipment.

The first boat of this class has just been produced, and was recently put through its trials at Cowes. This boat is for Mr. Robert Holt, of Canada, and has two Wright Whirlwind engines which total 600 h.p.

Internally the Cloud differs from the Cutty Sark, although externally and aerodynamically the appearance is the same. Both machines are high-wing cantilever monoplane flying-boats and in each case the engines are carried above the wing. The Cloud does not carry all its load in a cabin in front of the wing as in the Cutty Sark. In the Cloud the pilot and one other sit forward of the leading edge and the rest sit in a big cabin beneath the wing.

The wing is a cantilever monoplane and is of wood construction, very much of Fokker type. The spars are of box section with spruce flanges and ply webs. The ribs are also of plywood with spruce flanges and stiffening pieces. There are a number of longitudinal stringers and the whole surface is covered with plywood. Round the engine mountings this covering is stiffened to make a walk-way. The wing is attached to the hull simply by four bolts.

The ailerons are of the sawn-off variety.

This type of wing offers particular advantages for a flying-boat, not only has it the proved advantages of low maintenance charges (if any) and ease of repair, but such a wing is water-tight and in emergency will float the whole hull.

The hull has two steps and the sides have a marked tumble-home towards the deck. Here again the Cloud differs from the Cutty Sark, for in the former the planing bottom aft of the first step tapers to the vertical second step where there is a water rudder which makes for increased manœuvrability on the water. The straight lines of the frame and the open-sided sections used, together with the covering of flat plates all make for ease of maintenance. Repairs become comparatively simple when one can rivet a new plate in position without having to beat it to shape.

Saunders-Roe Ltd. are using a neat method of longitudinal stiffening. The covering or skin has widely-pitched corrugations of large radius. These are obtained by pressing the corrugations along one side of each sheet and fitting these together along the joint.

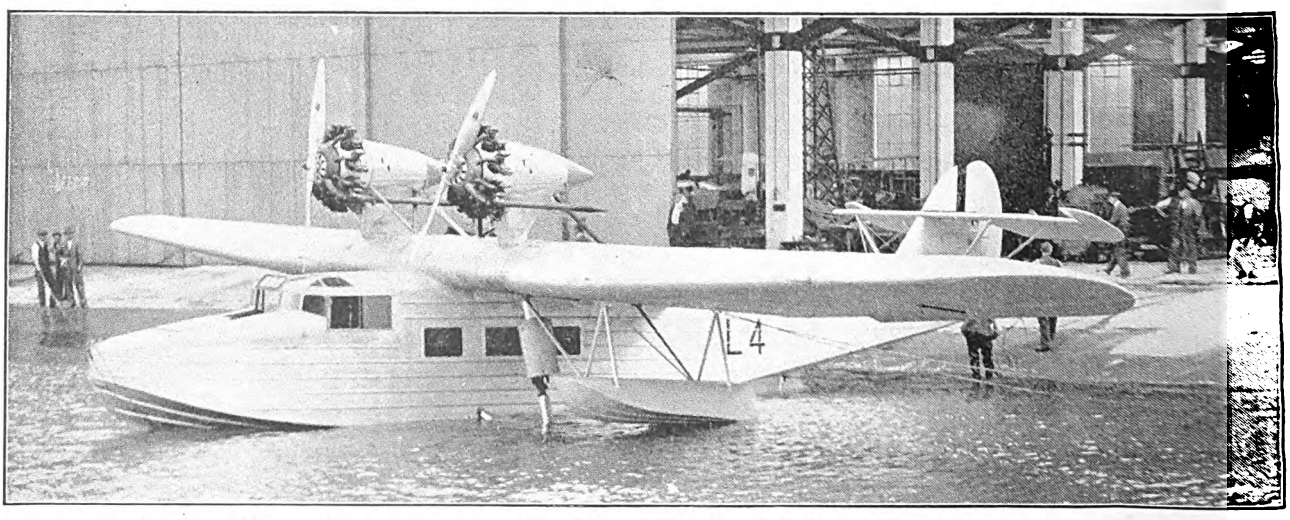
On the water lateral stability is given by two floats, which are suspended by struts from the wings and placed close to the hull (that is as opposed to the wing-tip type). These floats are also built of Alclad.

The tail-unit is of the monoplane type with the tail-plane mounted above the fin which is built of Alclad integral with the hull. The other surfaces are of welded steel tube and covered with fabric. The tail-plane, which has two struts each side, is adjustable in flight. Push-pull rods through the fin are used to work the balanced elevators and balanced rudder.

The amphibian undercarriage is in two similar parts, each part has a wheel, an axle, a radius-rod and a shock-absorbing leg. The axles hinge to the front spar frame and the radius-rods to the rear spar frame. The legs run up to the fittings on the wings for the inner struts of the floats. These legs have a combined shock-absorbing arrangement of oil and rubber. The wheels can be wound up till they are well clear of the water.

The engines are mounted above the wing on inverted pyramidal mountings and braced in-board with struts. A noticeable feature is the lowness of these mountings so that the tips of the airscrews are below the leading edge of the wing.

The main tanks in the wings have a total capacity of 200 gallons. Each engine has an A.M. fuel-pump which supplies direct to each carburettor. A balance-pipe connects the tanks, and a cross connection joins the two engines so that should one pump fail both engines can be supplied from the one pump. The oil is carried in a conical tank



WHEELS DOWN.—The Saunders-Roe Cloud being wheeled into the water on its amphibian chassis.

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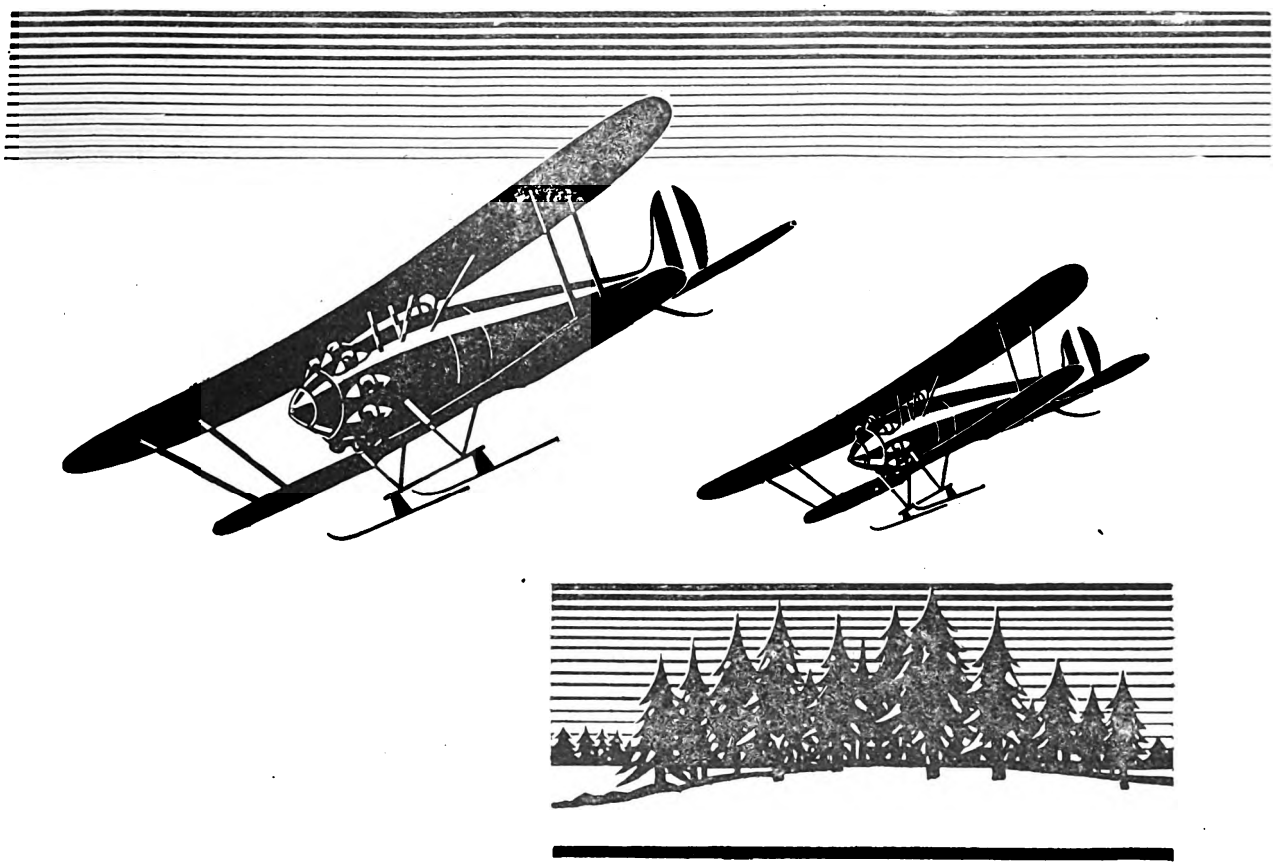

The very real danger to aircraft from snow is only too well known to all who have had anything to do with Arctic aviation. Cellon Dope renders fabric proof against water, oil and petrol, preventing injury from extreme temperatures, and even reduces inflammability. Cellon Dope is always used by the Bristol Aeroplane Co., Ltd., whose "Bulldog" machine has just been adopted by the R.A.F. as Standard Single-seater Fighter, and also by the Royal Australian Air Force. the Air Forces of Latvia, Esthonia, etc.

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which forms the rear of the engine cowling, and also gives surface cooling.

The accommodation is extensive. In the extreme nose is a compartment where warps, anchors and other equipment can be stored. This has a hatch. Aft of this is the pilot's cabin. Access to this is from the deck through a sliding hatch and a lifting windscreen. So that one can easily come aboard from a boat, handrails and steps are provided. The windscreen is Triplex, the sliding side panels and roof are glazed with Cellon.

There are two side-by-side seats. That of the pilot is on the left with the instrument board in front of him. Dual control can be fitted as an extra. The controls are of the usual type for flying-boats with wheel and stick, but a variation is the parallel-motion rudder-bar which is adjustable for various lengths of leg.

For manœuvring on the water a bollard is placed just outside the pilot's window and within his reach so that after passing the forward bollards the mooring rope can here be made fast. When necessary the pilot disengages this himself.

Aft of the pilot is the main cabin. This is 10 ft. 6 in. long with an average headroom of 5 ft. 6 in. along a central walkway. The seats are arranged on a raised floor close to the windows. Aft of this cabin is a door, then a lavatory and aft of that the main companion way to the deck.

SPECIFICATION.

DIMENSIONS.—Span 64 ft. (19.5 m.), Chord from 12 to 7.5 ft. (3.65 to 2.2 m.), Overall length 49.75 ft. (15.2 m.), Overall height 13 ft. (3.96 m.), Wing area 650 sq. ft. (60.4 sq. m.).

WEIGHTS AND LOADINGS.—(*Flying-boat*)—Weight empty 5,100 lbs. (2,310 kgs.), Pay load 2,210 lbs. (1,000 kgs.), Pilot 170 lbs. (77.0 kg.), Fuel and oil (four hours) 1,020 lbs. (463 kgs.), Weight loaded 8,500 lbs. (3,850 kgs.), Wing loading 13.1 lbs./sq. ft. (64 kgs./sq. m.), Power loading 14.15 lbs./h.p. (6.43 kgs./h.p.); (*amphibian*)—Weight empty 5,000 lbs. (2,490 kgs.), Pay load 1,810 lbs. (822 kgs.), Pilot 170 lbs. (77.0 kgs.), Fuel and oil (four hours) 1,020 lbs. (463 kgs.), Weight loaded 8,500 lbs. (3,850 kgs.), Wing loading 13.1 lbs./sq. ft. (64 kgs./sq. m.), Power loading 14.15 lbs./h.p. (6.43 kgs./h.p.).

PERFORMANCE.—(*Flying-boat*)—Max. speed at ground 125 m.p.h. (201 km./hr.), Cruising speed 110 m.p.h. (176 km./hr.), Landing speed 55 m.p.h. (87.5 km./hr.), Range four hours; (*amphibian*)—Max. speed at ground 120 m.p.h. (193 km./hr.), cruising speed 105 m.p.h. (169 km./hr.), Landing speed 55 m.p.h. (87.5 km./hr.), Range four hours.

EARNED APPRECIATION.

The following letter is worth publishing, even three months late, because appreciation of a good thing can never be too late:—

Airwork Ltd., Heston Air Park, 28th April, 1930.

Dear Mr. Desoutter,—I am writing a few words to congratulate you on producing such a pleasant machine. As you know, I accompanied the Heston Spring Cruise as far as Friedrichshafen and you may like to hear something of my experiences.

On the first part of the trip, to Douai, we forged through several rain and hail storms. In fact, the hail shattering on the Triplex wind-screen in front made a most frightening noise. Naturally we very much appreciated the cabin saloon. My wife, who had previously been rather prejudiced against cabin machines, by the time we got over the Channel where, incidentally, we had to come down to 1,800 ft. to get under some of the clouds, suddenly changed her mind completely and discovered that the Desoutter Sports Coupé had tremendous advantages. For instance, at St. Inglevert, where we landed to find out why one of the Moths on the cruise had landed there it was raining hard, but with the saloon we were able to sit inside the cabin and keep ourselves warm and dry in spite of the torrents of rain.

Most of the cross-country flying, Douai—Brussels, Brussels—Cologne, Cologne—Frankfort, Frankfort—Stuttgart, Stuttgart—Friedrichshafen and back was done in company with Gipsy Moths. It was discovered that at 1,680 r.p.m., the Desoutter was averaging about 82 m.p.h., and at 1,750 r.p.m. was doing about 90 m.p.h. and this sometimes with three passengers and luggage. At 1,680 r.p.m. the petrol consumption averaged about 4.9 gallons per hour.

On one occasion a party of three machines went over from Frankfort to Darmstadt to see a special racing biplane. The Desoutter started about two miles behind a Gipsy Moth and a Widgeon and in the 15 miles caught up easily. The other machines were doing about 85 m.p.h. and the Desoutter engine never exceeded 1,800 r.p.m. There is no doubt in my mind that it is definitely faster than the average tandem biplane.

One of the features which appealed to me most was the extremely good visibility. Before starting I had wondered whether a monoplane of this type would be comfortable in company with a crowd of other aircraft, but in actual fact, I was very much happier in the Desoutter than I normally am in the biplane type;—quite apart from the fact that one can definitely see the country over which one is going to pass and can pick out other aircraft at a distance very much more easily.

To me one of the most surprising features was the ability of the machine to get off with three passengers and luggage and climb as well as the ordinary 2-seater light aeroplane with two up. In this connection one has to remember the fact that the Desoutter should be taken off with the tail very much lower down. In fact, if the machine is taken off with the tail well up, it takes a very long run before it gets enough speed.

On this trip I found that the best speed to come in at was about 55 m.p.h. and that she then flattened out and landed at about 48 m.p.h. exceedingly gently and did not float at all. In fact, I should be perfectly prepared to take the machine in and out of the normal landing fields which I am in the habit of using with Moths.

The machine certainly runs very freely once it is on the ground and I think would benefit very much by having brakes fitted if it is to be used for small fields. [Which is being done.—ED.]

The machine was very much admired at all the stopping places, but the people of Frankfort exhibited most practical interest. I took up several of them and they considered it remarkably cheap at the price.

I landed the machine in two comparatively small fields, one near Dijon and one in England. The one near Dijon was made necessary because the small copper tube connecting the petrol-gauge to the tank fractured and proceeded to pour petrol into the cabin, and we had visions of the whole petrol supply having run out somewhere so had to make a rather hurried descent.

I was very interested to notice the way the machine behaved in bumpy weather. In this machine I never experienced any of the short kicks and its movements were much more gentle. In this connection, one of the ladies of the party, who was sick in an open cockpit machine, thoroughly enjoyed her trip from Stuttgart to Friedrichshafen over the mountains, and this seems to dispose of the idea that a closed cabin machine is more liable to cause this sort of trouble than an open cockpit machine.

On the way back from Dijon, we ran into some much warmer weather and I feel sure that the passengers would have been more comfortable if the rear windows could be made to open. This, I understand, is already being done in the case of your present machines.

The only other small criticism which I should like to make is that a little bit of rain came through the front wind screen and that the tail window forming the top half of the front side windows should be more rigidly encased in order to prevent vibration in the wind. Also, a certain amount of draught and wind came in through this point.

Finally, I should like to register my impression that the Desoutter Sports Coupé is an extraordinarily strong little ship and gave me a feeling of complete confidence in her strength.

(Eigned) ALAN MUNTZ.

BRITISH COMPETITION IN CANADA.

In recent aviation news-notes from Canada it is encouraging to see that the De Havilland Hawk Moth (Armstrong Siddeley geared Lynx) is being well received in official circles there. "A quantity" of them have been ordered for allotment to the civil air operations branch. The De Havilland Aircraft of Canada, Ltd., are also sponsoring the Blackburn Lincock which is much liked by the R.C.A.F. officers who have flown it.

Apart from these two machines all the new equipment of commercial companies seems to hail from the United States or elsewhere. Two newly registered aircraft at the Lulu Island base are a Stinson Junior (Lycoming engine) and a Junkers Junior (Genet).

The air mail from Winnipeg to Moose Jaw operated by Western Canada Airways Ltd., is now being flown with a new consolidated Fleetster six-passenger all-metal aircraft with a Pratt and Whitney Hornet engine. It is alleged to have a top speed of 170 m.p.h

THE LATEST DEVELOPMENT.—The Desoutter Mark II (Gipsy III), which is one of the sensations of the moment, and has a speed of 125 m.p.h. with three up.

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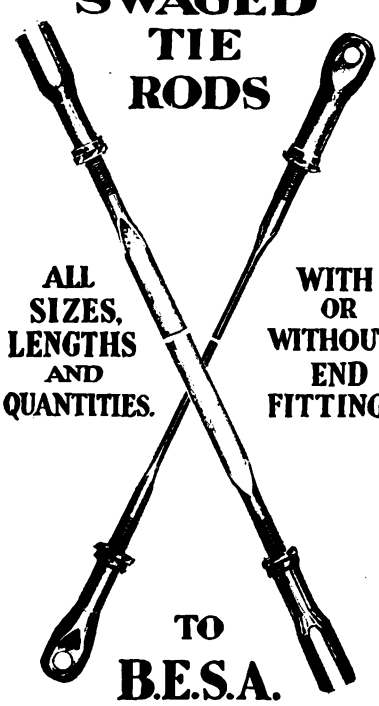

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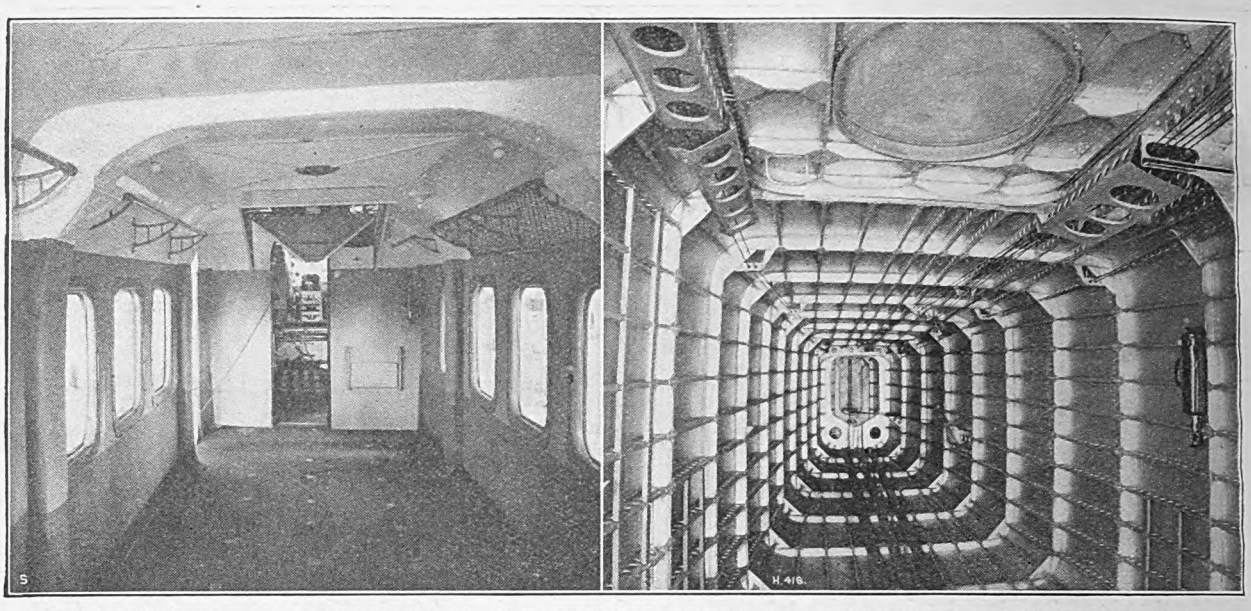

FORE-AND-AFT.—The left-hand picture shows the big size of the passenger-cabin; the right is a view towards the tail.

the spars are of the Short duralumin design and the ribs built up of dural tube. The ailerons are slightly inset from the tips and also have inset hinges.

The tail-plane is braced by an "N" strut which also governs its incidence through a trimming gear adjustable in the air. The elevators have inset hinges like the ailerons but are unbalanced. They hinge to the rear spar of the tail-plane which is the movable member in the trimming operation.

The rudder hinges on a large fin, and is both balanced and fitted with a servo control on booms extending from its trailing edge.

Beside the starter mechanism on the roof of the cabin is a winch attachment for use with special derricks when an engine is being installed or taken out.

SPECIFICATION.

DIMENSIONS.—Span 107 ft. (32.65 m.), Length overall 69 ft. 8 in. (21.25 m.), Height overall (seaplane) 19 ft. 6 in. (5.95 m.), Height overall (landplane) 15 ft. 6 in. (4.73 m.), Wing area 1,382 sq. ft. (128.5 sq. m.).

WEIGHTS AND LOADINGS.—(Seaplane): Weight empty—including cabin equipment—14,535 lbs. (6,605 kgs.), Disposable load 7,865 lbs. (3,575 kgs.), Crew 660 lbs. (300 kgs.), Wireless, electrical and other gear 845 lbs. (384 kgs.), Passengers and luggage 3,360 lbs. (1,525 kgs.), Fuel and oil 3,000 lbs. (1,360 kgs.), Weight loaded 22,400 lbs. (10,180 kgs.), Wing loading 16.2 lbs./sq. ft. (79.25 sq. m.), Power loading at 1,575 h.p. 14.2 lbs./h.p. (6.46 kgs./h.p.).

WEIGHTS AND LOADINGS.—(Landplane): Weight empty—including cabin equipment—13,985 lbs. (6,365 kgs.), Disposable load 7,865 lbs. (3,575 kgs.), Crew 660 lbs. (300 kgs.), Wireless, electrical and other gear 845 lbs. (384 kgs.), Passengers and luggage 3,360 lbs. (1,525 kgs.), Fuel and oil 3,000 lbs. (1,360 kgs.), Weight loaded 21,850 lbs. (9,940 kgs.), Wing loading 15.8 lbs./sq. ft. (77.3 kgs./sq. m.), Power loading 13.9 lbs./h.p. (6.33 kgs./h.p.).

PERFORMANCE.—(Estimated) (Seaplane): Max. speed at sea level 135 m.p.h. (217 km./hr.), Cruising speed at 1,800 r.p.m. 105-110 m.p.h. (169-177 km.hr.), Landing speed 65 m.p.h. (104.5 km.hr.), Initial rate of climb 850 ft./min. (257 m./min.), Service ceiling 14,000 ft. (4,270 m.), Climb to 10,000 ft. (3,048 m.) 18.5 min., Range at cruising speed 520 miles (835 km.).

PERFORMANCE.—(Landplane) (estimated): Max. speed at ground level 138 m.p.h. (222 km.hr.), Cruising speed at 1,800 r.p.m. 105-110 m.p.h. (169-177 km.hr.), Landing speed 64.5 m.p.h. (104 km.hr.), Initial rate of climb 880 ft./min. (268 m./min.), Service ceiling 14,800 ft. (4,520 m.), Climb to 10,000 ft. (3,048 m.) 17.5 min., Range at cruising speed 520 miles (835 km.).

LUXURY.—The interior of the passenger cabin of the Short Valetta. The neat removable ceiling panels should be noticed.

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✷ SPARTAN - ARROW

THE newest two-seater light aeroplane. The control right up to the moment of stall is a revelation. The ease with which it can be landed and taken off astonishes even experienced pilots. With pilot, passenger and fuel, the Spartan "Arrow" will land at the low speed of 35 m.p.h. and the angle of climb is exceptionally steep.

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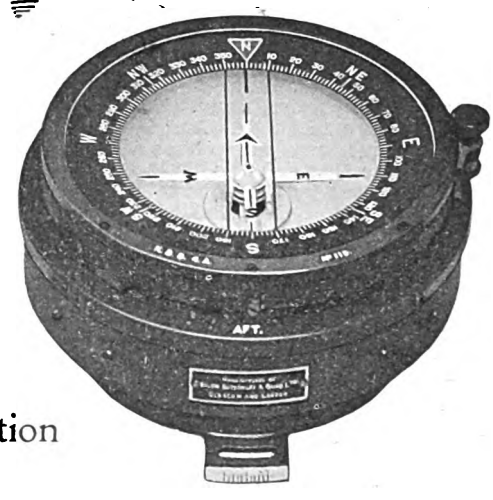

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A CHARITY MATINEE.

On July 19 an Aerial Meet and Rally was held at Hanworth Air Park in aid of the National Birthday Trust Fund. Mrs. Stanley Baldwin was chairman of the Committee, and an impressive list of patrons gave their support on paper.

Flying has been turned to many uses, but it has not till now appeared as a fairy godmother in connection with maternity services. The idea was at least original and the function, on the whole, was well run.

The feature was a race of two laps round a triangular course: Hanworth—Reading—Farnborough—Hanworth, and the remainder of the programme was almost on time. The fly-past included:—Autogiro (Genet), Desoutter I (Hermes), Desoutter II (Gipsy III), Bluebird (Gipsy I), Moth (Gipsy I), Hendy 302 (Hermes).

During the second circuit, when the machines were parading past at speed, Messrs. J. Summers and P. E. G. Sayer had a forced landing in the Desoutter II. It had too much speed to stop comfortably within the space available, and disappeared round the hangars sideslipping viciously. Ultimately the pilot collapsed one side of his undercarriage by deliberately kicking on the rudder to avoid charging the fence. Nobody was hurt except the machine.

There were fourteen starters in the race. Mr. D. M. K. Marendaz's Moth (Cirrus I) took off first with about half an hour's allowance, followed by more Moths, a Klemm (Cirrus III), two Widgeons, two Avians, two Spartans, a Bluebird, a Tomtit, the Hendy 302 and a Puss-Moth.

The prize list was almost as attractive as that of the King's Cup Race. The Rt. Hon. Sir Philip Sassoon presented three cups. Sir Julien Cahn gave a cup for the highest speed, the winner of which also got a cash prize. An Empire Prize, to go to the representative of a British Dominion who got home first, took the form of a cup presented by His Grace the Duke of Sutherland.

While waiting for the winner to return Mr. H. M. Schofield gave his usual neat display on a Moth and Flg. Off. L. A. Egglesfield demonstrated the Autogiro. Mr. Schofield then took up a Desoutter and threw it about until finally "shot" down by the stewards who were expecting the winner at any moment.

Sq. Ldr. Guest came in first. Mr. Percival was not far behind, and then came Mr. C. S. Napier's Widgeon (Gipsy I) which had started seventh, and Mr. W. A. Andrews' Spartan three-seater (Hermes), which was the fifth to get away.

On the heels of the fourth man came Sq. Ldr. Shearer's Puss-Moth. He beat Capt. R. Douglas's Moth (Gipsy I) which had been entered by the High Commissioner for South Africa, and so won the Empire Cup.

Mr. John Tranum went up in a Spartan and made his parachute jump No. 800-and-something. For once his judgment was slightly at fault, and although he could be seen slipping his parachute with great determination at first he soon saw that he could not come within the aerodrome and was last seen dropping behind the trees.

The official announcement moderated the glee of the Tomtit enthusiasts. Sq. Ldr. Guest was disqualified. That left Mr. Percival with a very well-earned win, for which he got Sir Philip Sassoon's largest cup and cash prize as well as Sir Julien Cahn's cup for the highest speed in the race, 128.7 m.p.h. Mr. Napier, another inveterate trier, got second and Mr. Andrews third. Everybody was very pleased at Mr. Percival's win. He has been a real trier for years, without much luck. And now, in the Hendy 302, he and Mr. Henderson seem to have a real winner.

The Empire Cup went to Sq. Ldr. Shearer, who also got a cup presented by Sir Albert Bingham for winning the arrival competition. Mrs. Baldwin presented the prizes.

A RECEPTION FOR MISS JOHNSON.

The Air Ministry announces that arrangements have been made for an official reception to be given to Miss Amy Johnson when she arrives at Croydon Aerodrome on her return from Australia. Miss Johnson has intimated that she will travel from Egypt by the Imperial Airways aircraft which is due to arrive at Croydon on Monday, Aug. 4.

Full details of the arrangements which are being made to enable the public to be present at Miss Johnson's arrival will be published later. Meanwhile plans have already been approved for a large part of the western section of the aerodrome to be utilised as a free public enclosure.

THE MANCHESTER-LIVERPOOL AIR RACE.

The Inter-City Air Race between Manchester and Liverpool, which is an annual struggle for a trophy presented by Sir William Cundiff, an ex-Lord Mayor of Manchester, is to be held on Aug. 30.

The course has been selected and goes by way of Hooton—Woodford—Barton—Southport—a point east of Liverpool—Hooton. Competitors who are handicapped on estimated performance land at Barton. The race is open to any number of entrants from either city, though pilots must reside within 25 miles of the city they represent and their machines must either be owned privately or by a club.

The Racing Committee are:—Flt. Lt. Comper, of the Comper Aircraft Co. Ltd.; Mr. D. F. Dyson, Captain P. T. Eckersley, Chairman of the Lancashire Aero Club; Mr. A. Mousdale, of the Liverpool Aero Club, and Mr. John Leeming, of Northern Air Lines (Manchester) Ltd.

A BROOKLANDS TO BRIGHTON RACE.

The Brooklands School of Flying announces that Mr. A. R. Pole, of "Woodstock," St. George's Hill, has offered a gold cup as first award for a race from Brooklands to Brighton and back in the near future. Mr. Volk, of Brighton, has already mentioned the possibility of some money prizes for such a contest.

Prospective competitors should communicate with Mr. H. D. Davis, of the Brooklands School of Flying, Brooklands Aerodrome, Byfleet, Surrey.

FLYING BETWEEN CROYDON AND LYMPNE

The Air Ministry has issued the following notice:—

When the specified conditions of bad visibility prevail on the Croydon-Lympne air route, pilots of aircraft not equipped with radio, shall before taking-off to fly over any portion of that route, request the official in charge of the aerodrome of departure to advise by telephone either the Chief Aerodrome Officer, Croydon air port, or the Aerodrome Officer in Charge, Lympne air port, of the particular alternative route [i.e., one of the three routes given in (i), (ii) or (iii) of § 12 (1) of *The Air Pilot,* Volume I] which he intends to follow.

The official in charge of the aerodrome of departure should ensure that such information, together with the time of departure of the aircraft, is telephoned to Croydon or Lympne, as the case may be, immediately the aircraft has left.

The Air Pilot, Volume I, § 12, is affected and will be amended in due course.

THE INCREASING AIR MAIL.

The total weight of air mail, letters and parcels carried from this country during the June quarter of this year was 29 tons. This is an increase of seven and a half tons over the figures for the corresponding quarter of 1929. Of this 29 tons, 22,277 lbs. or nearly 10 tons were letters. The rest were parcels. About half a ton of the letters were despatched for transmission by the Australian internal service and about five and a half tons of letters were carried by the Indian Air Service.

There appears to be a slow increase in the amount of material carried, but these figures if compared with the total weight of mail carried by alternative means of transport are negligible. The reason people are so slow to use air mail is its small saving in time over cheaper and better organised, and better known, forms of mail transit.

THE GERMAN NIGHT AIR MAIL.

The Postmaster-General announces that, according to information received from Germany, the later departure of the Night Air Mail Service between London, Cologne, Hanover and Berlin, which was recently announced to come into force on July 19, has been postponed until July 28. Until that date, the latest time of posting for air mail letters to Germany will therefore still be 3.0 p.m. at the special Air Mail Posting box at the G.P.O., London, and correspondingly earlier elsewhere.

[On the whole this service is useless.—ED.]

ANOTHER ISLE OF WIGHT MEETING.

The Isle of Wight Flying Club announce another flying meeting and general air display to take place on Sunday, Aug. 17, at the Shanklin Aerodrome.

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HIDING THE CANDLE.

Recently the energetic representative of a well-known firm of petrol-pump makers was in Germany and naturally was frequently to be seen at the Tempelhof Aerodrome. On one occasion a man who has been in aviation since 1912 and is well-known in Berlin as a supplier of aeronautical instruments asked the afore-mentioned representative whether he had ever heard of Imperial Airways and whether an enquiry from them was worth taking seriously. The German had never heard of Imperial Airways and apparently thought they were some joy-riding concern.

One has also heard that no time-tables of Imperial Airways are available at Tempelhof, which is a short-sighted policy. From such an aerodrome anybody is likely to set out over a route served by I.A.L. and if such a person has not a time-table available he may go by an alternative line.

A CONVERT TO THE AIR TAXI.

A habitual air traveller—on the regular commercial routes—recently wrote to say that he has only just realised "the extraordinary efficiency and simplicity of the air taxi."

Mr. W. W. Nisbet, calling on Mr. J. K. Carruth, of Bentley Motors, Ltd., to wish his cars success in the imminent Grand Prix at Le Mans, was astonished to find that Mr. Carruth could not get away to see the race on account of business pressure. Mr. Nisbet suggested that they share an air taxi, and so at 04.30 hours on the morning of the race they set off in a Desoutter from Croydon Aerodrome. They stopped at St. Inglevert for breakfast and got to Le Mans at 08.25 hours after circling the course. They found that plenty of others had also come by a similar means in many kinds of light aircraft.

After spending seven hours on the course, and seeing a British car carry off the honours, they left for home at 17.15 hours and landed at Croydon by 21.15 hours.

Mr. Nisbet has high praise for the comfort of the Desoutter for its two passengers and pilot, and found it less noisy than the large air liners. The charge worked out at slightly more than a shilling a mile, and at least one of the passengers says he looks forward to the day when the first air taxi rank will be established in Hyde Park.

PRIVATE OWNER SERVICE AT ABBEVILLE.

The De Havilland Aircraft Co. Ltd. have received information from Mr. George Nash, the recognised representative for Imperial Airways and Air Union at Abbeville, that there will be more than usual facilities for private owners of aircraft at this half-way point between London and Paris.

Mr. Nash has always a special stock of petrol and oils on hand at the Abbeville aerodrome and is installing an electric pump. The field itself is within ten minutes of the town and the station, which is on the main line between Paris and Boulogne. Arrangements are also being made for spare parts and engine repairs.

NOT A BAD IDEA.

A reference has already been made in THE AEROPLANE (June 25) to the steel container which has been made by John Brown and Co. Ltd., in Sheffield, for the compressed-air wind-tunnel that is to be built at the National Physical Laboratory at Teddington.

The following appeared in *The Manchester Guardian* and is reprinted in the hope that the idea contained in the last sentence will prompt our scientists to a new method of research:—

> The steel tunnel is fifty feet long. When it is erected at Teddington fierce guests of wind will be propelled through it, and aeroplane parts will be tested inside it under conditions *worse than ordinary flying conditions.*
>
> [The italics are ours.—ED.]

BRIGHTER AIR PARKS.

One of the most extensive uses for copper is that for roofing purposes and the attractive green "patina" that it assumes on exposure to the atmosphere gives colour to many notable buildings. Ewart and Son, Ltd., who are specialists in copper roofing, as well as in a more privately domestic line, recently organised a design competition in conjunction with the Association of Architects, Surveyors and Technical Assistants. The idea of the competition was to keep before architects the possibilities and value of copper as roofing material. To make the competition topical and of special appeal to the modern generation of architects, the subject chosen was a private hangar for an owner-pilot of means.

Ewart and son Ltd. are to be congratulated on their enterprise and one hopes that the idea of copper roofs will catch on. Copper roofing compares very favourably with lead which is so often used. Copper is more durable and does not "creep." There is little doubt that the green of a copper roof will tone well with the surroundings of many private flying grounds and one hopes that a result of Ewart and Son Ltd.'s energy will be a movement for brighter hangar roofs.

MANY INVENTIONS.

Miss Amy Johnson, besides having a big share of the necessary skill, had also a large slice of the necessary luck to fly from England to Australia in a single-engined machine. Messrs. Hook and Matthews had less luck, and a description of their sufferings in the jungle confirms us in our opinion that such flights are not suited to lone girl flyers. We are Early-Victorian enough to believe that the Burmese jungle is no place for unchaperoned young females of sense and sensibility.

Miss Johnson, by the way, will land at Croydon Aerodrome in an Imperial Airways machine on Bank Holiday, Aug. 4. It is said that she will *not* be received by a small and select committee of those who were ready to help her before she became famous and before she left England on her flight to Australia.

On the other hand, she *will* be received by the full force, might, power and pomp of *The Daily Mail*. That journal is said to have bought most of the aerodrome for the day, including the hotel and especially the flat roof thereof, where to cow the crowd a large number of sub-editors in tall hats and speckled waistcoats are to be exhibited according to rumour. We do not know the paying load of the hotel roof, and all we can say is "Roof tree, for the love of Mike! do your duty."

Other methods of keeping the crowd in order are said to be hundreds and hundreds of yards of spiked railings, thousands and thousands of police, and loudspeakers, which will alternately sing soothing lullabies and howl furious instructions.

We hope these measures will prove adequate, for we have not forgotten Lindbergh's landing, when vast hordes of hen-witted hoboes galloped all over the aerodrome. After all the place is the Commercial Airport of London and the landing area is quite as sacred as the railway lines at a busy railway station. If therefore we are to have a mixture of Hampstead Heath and a vulgar brawl in Fleet Street on Aug. 4 we trust commercial flying will not be interfered with.

Mr. Robinson, well known as the designer of the Redwing, has resigned his position with Imperial Airways Ltd. to devote his whole time to the production and sale of his machine. One of the best caricatures Charles Dickson ever did, by the way, is a recent one of Mr. Robinson with red wings instead of arms and a generally alert and bird-like expression and carriage.

Mr. van Dyk and his wife are expected at Croydon on or about July 27. He had six weeks' leave from K.L.M. to do his Atlantic flight and, having done it, is, so far as we know, returning to air line work. There will be a big official reception in Holland for the first Dutch trans-Atlantic pilot when he gets there.

Recently a pilot was informed by his Air Superintendent, Manager, or what not, that a gentleman wanted a special machine to call for him at his private estate, and would the pilot please land at his field. "Right," said the pilot, "but where is his field?" "Isfield," replied the manager bloke.

"Yes, I know, but where is 'is field?"

"Isfield, I tell you, look it up on the map."

"Look here," replied the pilot bitterly. "How can I look up 'is blinking, sanguinary field on the map?"

"Ah-a!" quoth the manager. "A little mistake I perceive. The name of the town is Hisfield, spelt ISFIELD."

An American lady hurrying through Yurrup via Croydon Aerodrome rushed into the aerodrome buffet for a cup of tea. Obtaining it she poured the contents of the salt-cellar into it and drank some of it. Bitterly reproaching the establishment for serving such vile tea, she fled without paying. The point is that manners and customs differ in different lands, because no English person could possibly have suspected a very ordinary salt-cellar of containing sugar.

Salt, by the way, is a well-known emetic. We trust the lady enjoyed her air trip.—SPRY.

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IMPORTANT DATES.

July 20—Aug. 7.—International Touring Competition, starting from Berlin.

July 26.—Norwich Flying Meeting (Norfolk and Norwich Aero Club) (with R.A.F. support).

Aug. 17.—I.O.W. Flying Club Meet at Shanklin.

Aug. 30.—Liverpool-Manchester Inter-City Air Race for Cundiff Trophy.

Sept. 1—6.—International Congress on Air Navigation at The Hague.

Sept. 6.—Official opening of Mr. Lindsay Everard's private aerodrome at Ratcliffe, Leicester.

Sept. 6.—Bristol Air Garden Party to the British Association.

Sept. 20.—Liverpool Air Pageant (Liverpool and District Aero Club and Lancashire Aero Club) (with R.A.F. support).

Sept. 27.—Air Meeting at Hanworth.

Nov. 28—Dec. 14.—International Aero Exhibition in Paris.

IN THE INTERESTS OF AIRWORTHINESS.

Three Morris saloons have recently been commissioned by the Air Ministry to make easier and more thorough the work of its inspectors of the Aeronautical Inspection Directorate. Each one contains all the necessary apparatus for testing an aeroplane's airworthiness, and according to present information the cars will operate from Croydon, Hanworth and Manchester respectively.

On the floor of the van is a large and heavy weigh-scale, which is, of course, moved out onto the floor of the shed for weighing the machine. An unsprung platform of the same height is used to support the other wheel during the operation, and the tail skid is also supported at an equal height. The sum of the three readings gives the weight of the aeroplane, and their relation to each other establishes the position of the centre of gravity on the horizontal plane, which is very important.

In a small cupboard is the graduated water column to which the Pitot-tube is connected by a rubber tube and calibrated. The inspector blows it up to "full speed" and compares the readings as he releases the air.

In other cases are the rotoscope and master aneroid. The rotoscope is used to check tachometers and the master aneroid is placed, with the altimeter under test, in a chamber with glass windows which is mounted on one side of the van. A hand vacuum-pump reduces the pressure and the comparative readings of the two aneroids are noted.

As experiments are conducted further equipment may be added. As they stand these cars are an advance on any previous method, for tests can be made on instruments that previously had to be sent to the factory for checking.

Among the possible additions are a fabric tester and a hardness tester for steels.

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A COURSE ON AIRCRAFT AND ENGINE MAINTENANCE.

The Directors of the Brooklands School of Flying announce that arrangements have been made for a fully qualified lecturer and practical engineer to give a ten-days' course on the Maintenance of Aircraft and Engines. This course will begin on Tuesday, Aug. 5.

The fee for this course will be based on the amount of support received (the more the merrier and cheaper, one supposes). As circular letters have been sent to all private owners there are hopes of a big class. Any further particulars can be obtained by writing to the Brooklands School of Flying, Brooklands Aerodrome, Byfleet, Surrey.

WHAT THE MOTH HAS TO PUT UP WITH.

Miss Laura Ingalls "twenty-five-year-old transport pilot and social registerite of New York" recently made 980 loops one after the other so the *Curtiss-Wright Review* says. Miss Ingalls was up for three hours forty minutes on this flight which certainly shows what the long-suffering Moth will endure.

A HARD-WORKING FLYING SCHOOL.

During the month of June the Phillips and Powis School of Flying have been working pretty hard. Three instructors have been kept busy and five D.H. Moths have been in commission. 211 hours of instructional flying have been given and eleven pupils have passed their tests for "A" licences.

THE LYNX PROVES ITS WORTH.

The K.N.I.L.M. Fokkers (Three Armstrong Siddeley Lynxes) have recently completed 18 months' service in the East Indies. During this period the machines flew for 4,849 hours and covered a distance of 484,900 miles which is nearly twenty times round the World.

These machines carried 21,703 passengers, 203,983 lbs. of freight, and 8,784 lbs. of mail, which latter averages about 700 letters a day.

B.T.H. MAGNETOS IN THE RACE FOR THE KING'S CUP.

The machines to win the first three places in the Race for the King's Cup, the winner of the Siddeley Trophy, and the machine which made the fastest time all had B.T.H. magnetos. This is the latest addition to the long line of successes gained by engines with B.T.H. magnetos. In every King's Cup Race to date the first and second machines have had B.T.H. magnetos, a notable record.

PERSONAL NOTICES.

DEATHS.

DAWES.—On July 20, at Cranwell, Major Arthur James Dawes, M.V.O., R.A.F. College, Cranwell, late Grenadier Guards and South Wales Borderers.

GRACE.—On July 20, at Detling, near Chatham, as the result of a flying accident, Gladys Grace, daughter of Vice-Admiral H. E. Grace, R.N., of Alverstoke.

HENDERSON.—On July 21, at Meopham, near Gravesend, as the result of a flying accident, Lieut.-Col. George Lockhart Piercy Henderson, M.C., A.F.C. (late R.A.F.), son of E. Piercy Henderson (late I.C.S.) and Mrs. Henderson.

Lieut.-Col. Henderson was educated at Eton and Trinity, Oxford, and learned to fly at Hendon in 1915. He joined the Royal Flying Corps and was posted to No. 3 Squadron in France. Towards the end of the year he was wounded in action in the air over Lille but managed to land safely. He retired from the R.A.F. with the rank of Lieut.-Colonel in 1919. He was one of the first pilots employed by Daimler Airways Ltd., but resigned when Imperial Airways Ltd. was formed. He then formed and ran the Henderson Flying School Ltd. at Brooklands. In the last few years he has been running a flying school and air taxi service at Croydon Aerodrome.

ROGERS.—On July 15, as the result of a flying accident, at Sutton Bridge, Flg. Off. Peter Bagwell Rogers, R.A.F., second son of Colonel Rogers, Riverhill, Sevenoaks.

Mr. Rogers entered the R.A.F. with a short-service commission in October 1928, and after a course of flying training at No. 3 F.T.S., Grantham, he was posted in October, 1929, to No. 23 (Fighter) Squadron at Kenley. He was promoted to Flying Officer in April 1930.

SHEARING.—On July 21, at Meopham, near Gravesend, as the result of a flying accident, Charles D'Urban Shearing, son of R. S. D'U. Shearing, of Steel Cross House, near Crowborough.

Mr. Shearing served in the Royal Flying Corps during the War 1914-18.

SPENCER.—On July 20, at Detling, near Chatham, as the result of a flying accident, Lieut. S. E. H. Spencer, R.N., only son of Lieut.-Col. and Mrs. H. Spencer, Staplegrove Elm, Taunton.

FORTHCOMING MARRIAGES.

EWENS—FIELD.—The marriage arranged between Mr. F. G. H. Ewens, R.A.F., and Miss Daisy Kathleen Field, younger daughter of Mr. T. G. Field, of Nigeria, and Mrs. T. G. Field, of Exmouth, will take place on Aug. 2, at Exmouth.

MERTON—KIRBY.—The marriage arranged between Mr. W. H. Merton, R.A.F., and Miss B. H. Beckford Kirby, will take place in Winchester Cathedral on Sept. 22.

BIRTH.

SINCLAIR.—On July 18, at The Close, Halton, Bucks, to Dora (*née* Jewell), wife of Flt. Lt. F. W. Sinclair, D.F.C., R.A.F.—a son.

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Vol. II. 1930 Now Ready

The following are among the articles contributed to this Volume:—"Economics of Air Transport," C. E. R. Sherrington. "Air Survey Within the Empire," R. Bourne. "The Influence of Aviation on International Relations," Wing-Cmdr. A. G. R. Garrod. "British Commercial Aircraft," Major R. H. Mayo. "The Evolution of Rigid Airship Design," Lt.-Col. W. Lockwood Marsh. "The Mooring of Airships," Air Commodore E. A. D. Masterman. "The Royal Aero Club" and "Flying Clubs and the Private Owner," by Major C. C. Turner. "The British Aircraft Industry," F. Handley Page. "British Aeronautical Inspection," Lt.-Col. H. W. S. Outram. "Safety and Control," H. B. Irving. Articles on Aero Engines by F. A. Foord, A. G. Forsyth, and A. Swan. Articles on Steels, Tubes, and Metal Construction, by Dr. W. H. Hatfield, W. W. Hackett and H. J. Pollard.

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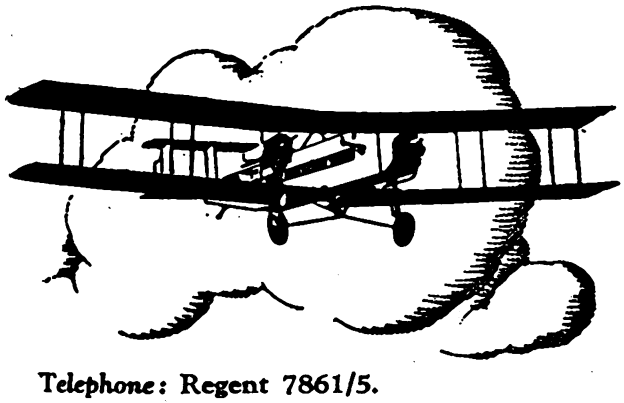

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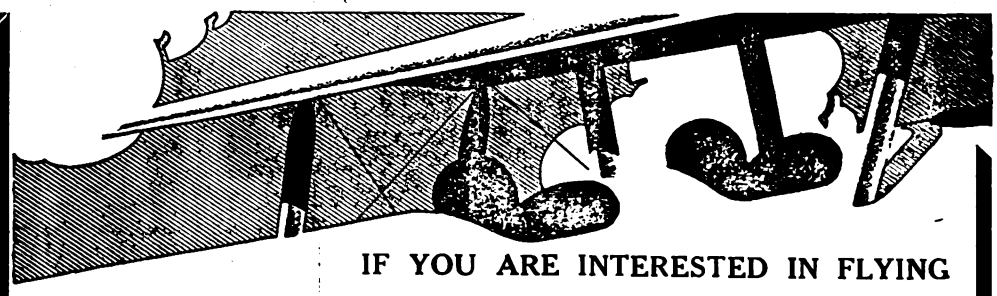

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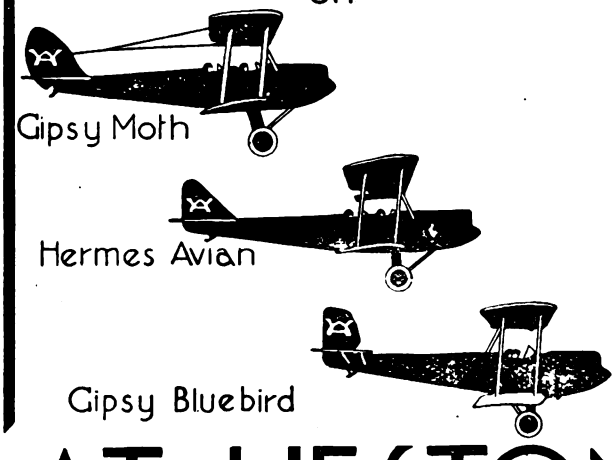

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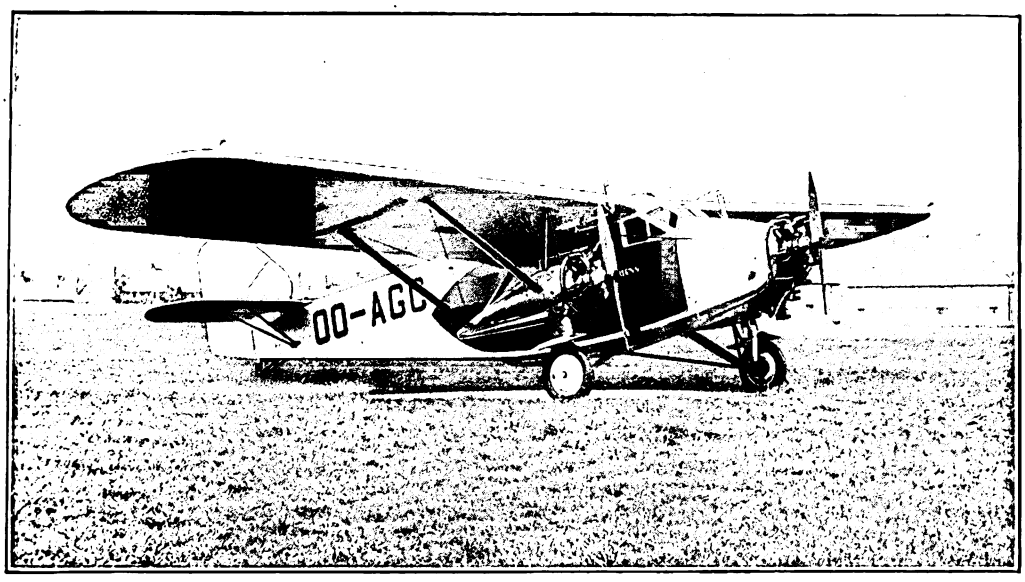

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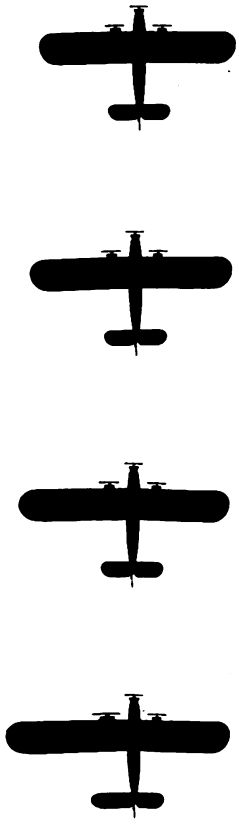

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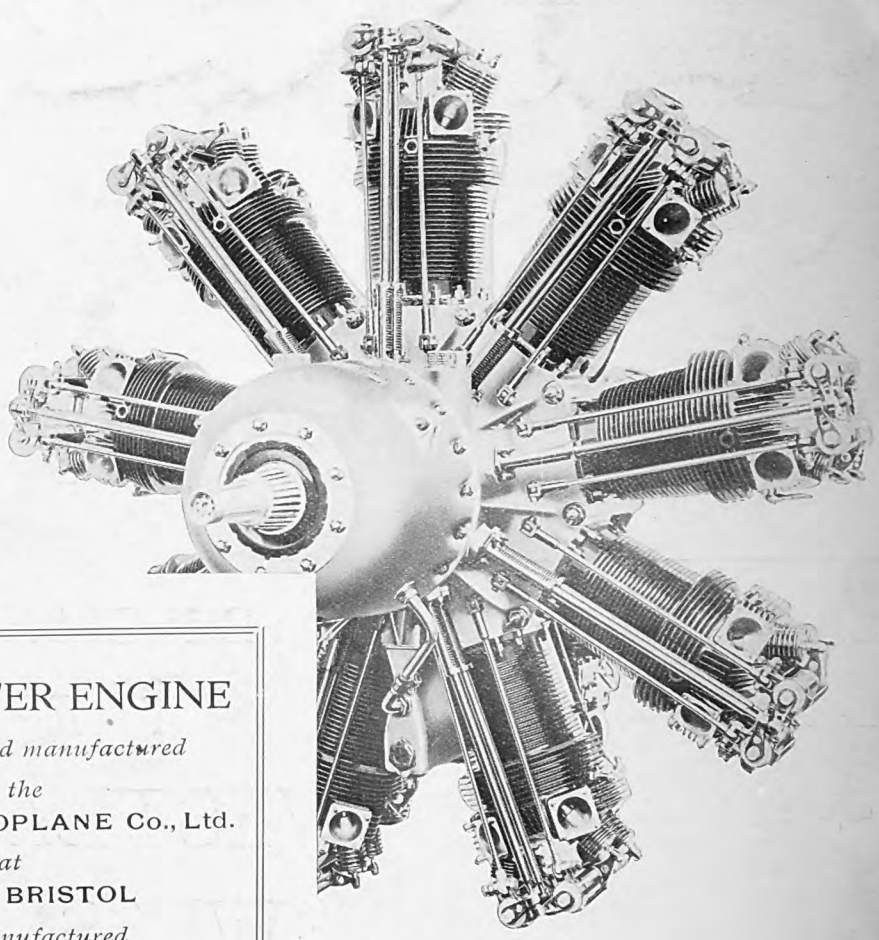

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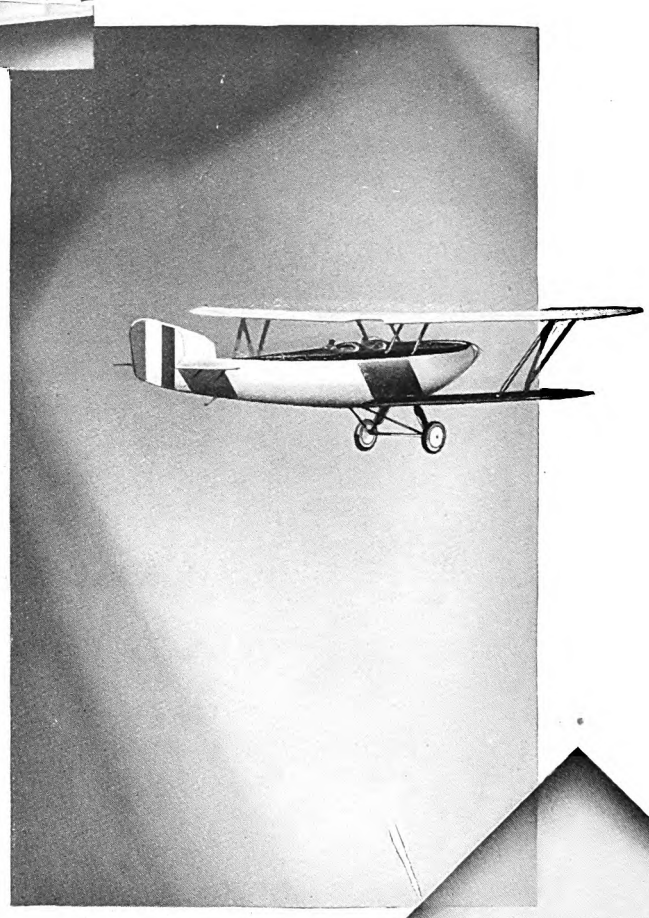

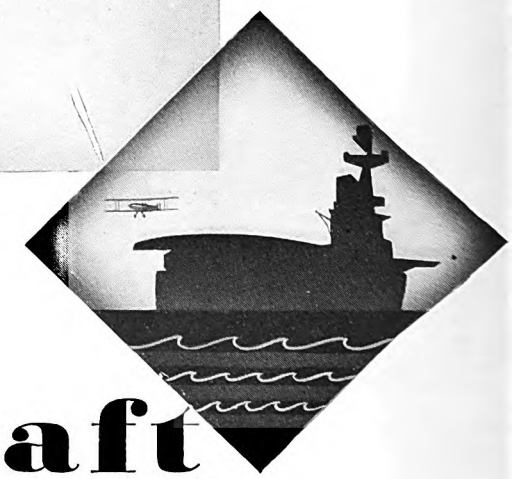

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ON A PIONEER OF AVIATION.

On Wednesday, July 23, Glenn Hammond Curtiss died in the General Hospital at Buffalo after an operation for appendicitis, at the early age of 52.

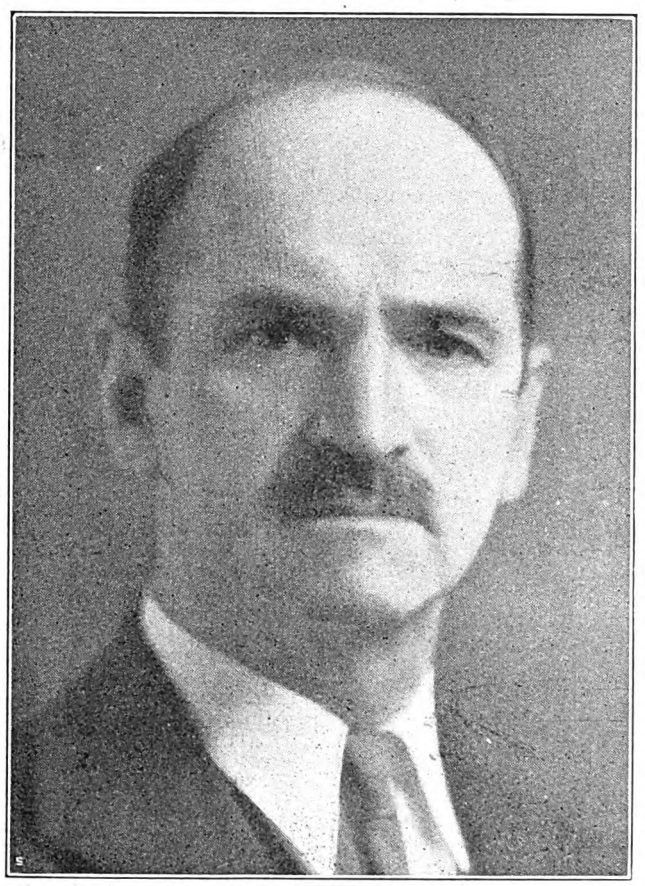
Glenn Curtiss was the greatest of the pioneers of American aviation, which means the World's aviation, for America was in front of Europe in active flying in the first days of the new art or science. He was the son of a clergyman, and in his early manhood devoted himself to the development of that most dangerous of vehicles, the motor-cycle. He built motor-cycles of his own and built the engines for them, mostly with his own hands.

With these machines he won most of the big speed events in the United States. And in the years from 1902 to about 1905 he beat a number of World's speed records on his own motor-cycles. There or thereabouts he began to take an interest in flying, which was entirely natural to one whose chief preoccupation in life was with speed.

Through his motor-cycle engines he became associated with a professional balloonist known as "Captain" Baldwin, who was one of the earliest experimenters with airships, or, as we called them in those days, dirigible balloons. His motor-cycle engines were the power-plants in Baldwin's experimental airships.

Through this again he associated himself with a group of men who called themselves the "Aerial Experiment Association."

In this group was Doctor Alexander Graham-Bell, the inventor of the telephone and of the phonograph, whose name is known to the World in combination with Mr. Edison in Edison-Bell telephones and Edison-Bell records. Also in the society were two Canadians, J. A. D. McCurdy and F. W. Baldwin, who was no relation to "Captain" Baldwin, the airship expert. And with them was Lieut. Selfridge, of the U.S. Army, who was killed when flying as a passenger in a Wright machine in 1908. McCurdy is still interested in the aircraft trade in Canada, Baldwin is also a successful business man, and Dr. Graham-Bell died some years ago at an advanced age and much honoured. So here we have examples of pioneers who reaped their rewards.



Glenn Hammond Curtiss, 1929.

These four, chiefly financed by Doctor Graham-Bell and advised on the more-highly technical points by him, produced several very interesting experimental aeroplanes built in 1907 and 1908. Of these the first was the *Red Wing*, designed by Mr. Selfridge, but the most successful was the *June Bug*, designed by Curtiss. This machine actually flew successfully in 1908 and won *The Scientific American* trophy for the first public flight of one kilometre in America.

At that time practically the only aeroplane in the world which flew was the Wright biplane. The *June Bug* differed from it in having a tail, as we understand it in these days. And this fundamental difference made all the difference between the ultimate success of the Curtiss machine and the total failure of the Wright design, which had no tail but depended on elevators in front for its stability fore and aft. The Wright was a complete "dead-end" design, like the Cody in England, and the Wright Brothers refused to change their basic ideas till too late, when other people had got the business.

In the Winter of 1908-09 McCurdy and Baldwin took one of the aeroplanes built by the Association to Baddeck, Nova-Scotia, where Dr. Graham-Bell lived, and there during the winter months flew something like a thousand miles off and onto the ice of the bay where they lived. This was at a time when no real flying had yet been done in Europe.

In the year 1909 Glenn Curtiss went on developing aeroplanes on his own account and the Association as such dissolved. In a short time the Curtiss aeroplane became famous.

During this year also the Wright Brothers, who had done the first flying, fell into the hands of financiers who had connections in various parts of the World. These interests proceeded to do their best to kill every other form of enterprise connected with aeroplanes. And then began the long and bitter war between the Wright interests and the Curtiss interests which only ended completely a few years ago when Mr. C. M. Keys, of the Curtiss Corporation, bought up the Wright Corporation and fused the two.

His First Appearance in Europe.

The first contact between the Curtiss interests and European Aviation, which was ultimately to be so much affected by Curtiss, was his appearance at the World's first real Aviation Meeting, at Reims, in France, in August, 1909. Glenn Curtiss brought over his own machine with a couple of friends to act as mechanics, and there in the face of all the high finance which was behind the Blériot and the Farman and the Antoinette groups, he won the first Gordon Bennett Cup for speed.

That was when I had the honour of first meeting Glenn Curtiss. And there is nothing in my experience of aviation, dating back to 1908, which gives me greater satisfaction than the fact that for nearly twenty-one years I have been able to claim friendship with him.

Lateral Control.

Apart from having proper tail control, the great feature about the early Curtiss biplane was the fact that it had proper ailerons.

Nearly all the aeroplanes of that day were controlled laterally by warping the wings up or down as might be required. Curtiss used small flaps mounted either on the interplane strut midway between the wings or on an extension of the wing-tips.

There are those to-day who hold that ailerons working on this principle are preferable to ailerons attached to the trailing edge of a wing, as is now almost universal practice. This type of aileron had at any rate the advantage that it was entirely independent of the angle of the wings themselves. And in that way it resembled the floating ailerons which are used by Captain Hill in the Pterodactyl, which is

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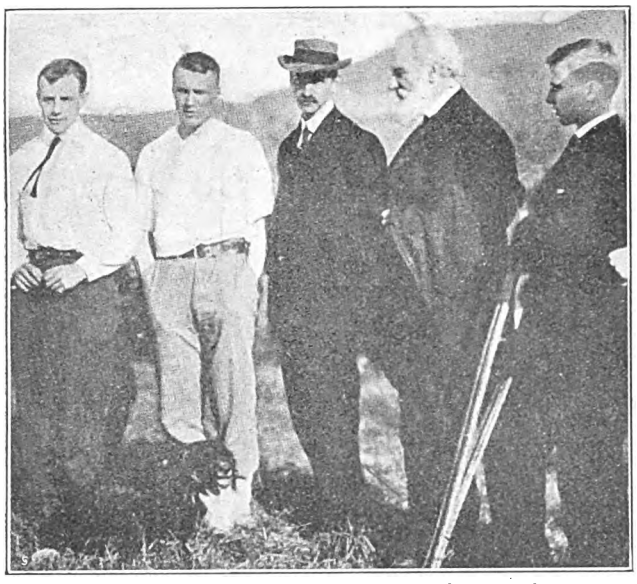


THE AERIAL EXPERIMENT ASSOCIATION.—Left to right: F. W. Baldwin, Lt. Thomas Selfridge, U.S. Army, Glenn Curtiss, Dr. Alexander Graham-Bell, and J. A. D. McCurdy.

regarded in certain scientific circles as the last word in lateral control.

Also, the independent floating aileron was used with success in the Tanager biplane which won the Guggenheim Competition last year,—which machine was built by the present-day Curtiss Corporation.

This matter of lateral control was the basis of all the litigation between the Wright interests and everybody else. The Wrights found that their clumsy apparatus could only be kept under control by coupling their rudder control to their wing-warping device. And on this they secured a patent. Later, when other designers made their machines fly with a rudder control separate from the lateral control the Wrights argued that the pilot himself constituted the connection between the two which was specified in their patent.

DEVELOPING THE HYDRO.

During 1910 and 1911 Glenn Curtiss was concerned with the development of his machines, which development was naturally hampered by continual litigation with the Wright interests, who, from time to time, obtained injunctions against him and hampered his work. Nevertheless, Curtiss made far more rapid progress than did anybody else in the United States.

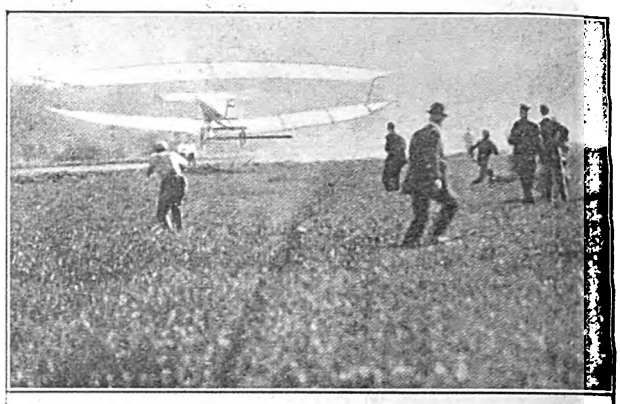
In the years 1912, 1913 and 1914 Curtiss did much remarkable work, which affected vitally the progress of aviation all over the World.

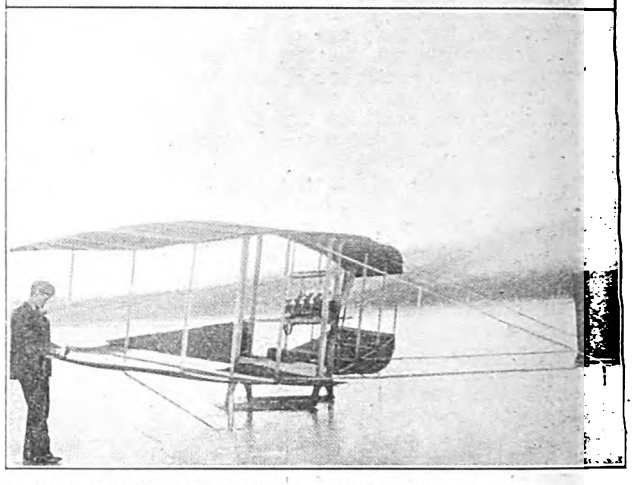
He was the first to introduce a satisfactory seaplane, or hydro-aeroplane, as it was very properly called at the time,—though to-day journalists habitually call it a hydroplane,—ignoring the fact that a hydroplane is a species of motor-boat. Probably the early Curtiss deserves the title "water-plane" rather than seaplane, seeing that it was more suitable for smooth water than for operation off and onto the sea. Nevertheless it was the first water-flying aeroplane.

This machine was produced at his works at San Diego, California, whither he migrated for the Winter from the colder climate of his native place, Hammondsport, N.Y.

DECK-FLYING TWENTY YEARS AGO.

At San Diego he came closely in touch with the U.S. Navy. And in co-operation with them Curtiss produced some remarkable work. Eugene Ely, whose name was famous all over the World in so far as the World took any interest in aviation in those days, flew a Curtiss biplane off the shore and alighted on the deck of the American warship *Pennsylvania* at anchor in San Diego harbour one day (not recorded) in December 1910. Also, Ely flew an aeroplane





THE FIRST CURTISS AEROPLANES.—Above,—the "White Wing" (Baldwin piloting) 1908. Below,—Selfridge's "Red Wing" on the ice on Lake Keuka.

off the deck of U.S.S. *Birmingham* and alighted on the shore on Nov. 14, 1910.

These flights, together with the production of an aeroplane which could fly off and onto water, were the first steps towards Naval Aviation, as we understand it to-day. And, be it remembered, these flights were made long before anybody in this country had done anything of the same kind. But to the credit of our early Naval aviators be it said, our pilots very soon did as much, and forthwith proceeded to do a great deal more.

THE FIRST BIG FLYING-BOAT.

The next step taken by Glenn Curtiss was in conjunction with a British officer.

John Wanamaker, proprietor of the great New York Department Store, offered to back Glenn Curtiss in building an aeroplane to fly the Atlantic. Some little time earlier Curtiss had been in England demonstrating one of the small flying-boats which he had developed from his early pontoon seaplane, which consisted merely of a kind of punt fixed underneath the engine and the pilot's seat of an ordinary Curtiss biplane.

This first flying-boat caused a very large amount of interest in England and brought about a meeting between Curtiss and a British Naval officer, Lieut. John Porte, who had been invalided out of the Navy suffering from tuberculosis and had devoted himself to flying. John Porte had formed the British Deperdussin Company, which built several very good aeroplanes, one or two of which had been sold to the Navy. And, naturally, John Porte, as a former Naval officer, was closely in touch with the Naval air authorities at the Admiralty.

Unfortunately, the British Deperdussin Company failed for lack of financial support, and when John Porte, who

The Flight of the "June Bug" for the "Scientific American" Trophy, July 4, 1908. This was the first public flight of a kilometre in the United States,—though at the time the Wright Brothers had probably flown greater distances more or less unseen.

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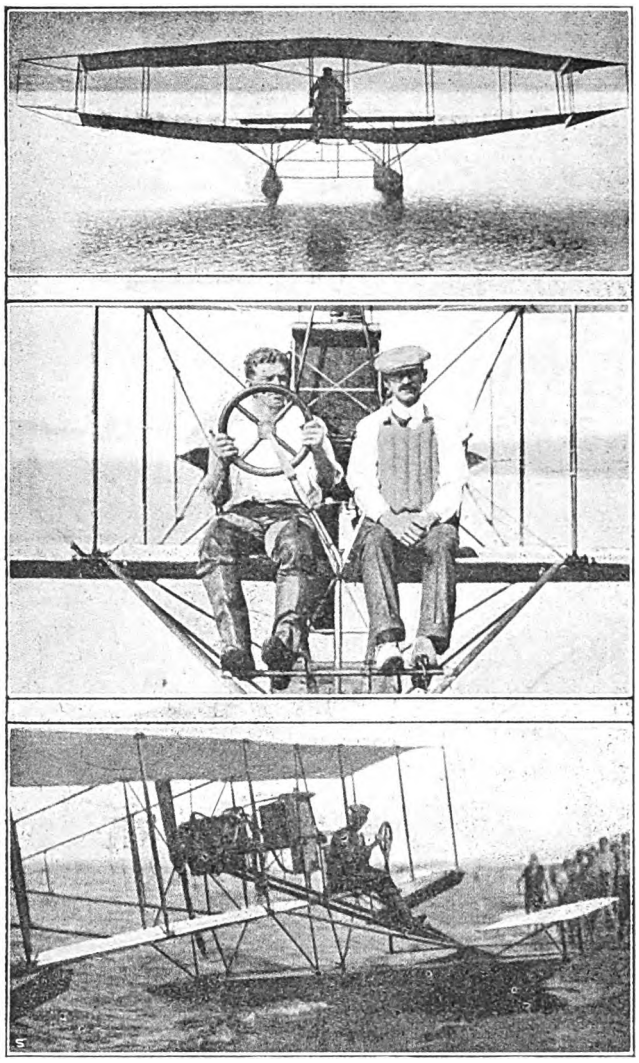
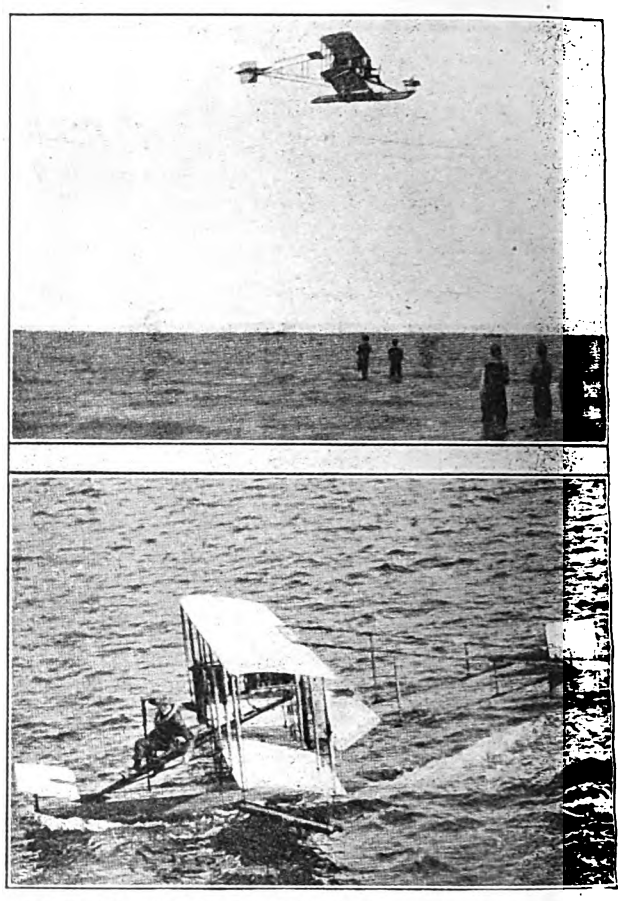


THE EVOLUTION OF THE HYDRO-AEROPLANE.—Top,—The "June Bug" on pontoons, Hammondsport, Nov. 5, 1908. Middle,—Curtiss (right) and Lieut. Ellyson, U.S.N., with dual control, at San Diego, 1911. Bottom,—Curtiss on a single-pontoon job.



CURTISS HYDRO-AEROPLANES.—The type evolved in 1910, with central pontoon.

was one of the finest pilots in England, heard of the Curtiss-Wanamaker arrangement he promptly offered to come and help Curtiss to build a big flying-boat which should be capable of flying the Atlantic, and also offered to fly it himself.

This boat was actually built. It failed to fly on two engines, and a third engine was actually fitted to it and the machine was just about ready for trial when war was declared in August 1914.

Wartime Activities.

John Porte, although supposed to be unfit for active service, instead of staying in the States and becoming a millionaire armament manufacturer, immediately came back to England and offered his services to the Royal Naval Air Service, and was promptly accepted. He was put in command of the Naval Flying School at Hendon, and later he was appointed to command the experimental station at Felixstowe. Some time before war was declared, when he was working on the big boat, he had made a business arrangement with Curtiss and his financial backers to represent the Curtiss Company in England, when the boat job was finished,—which was quite right and proper for a Naval officer who has been retired as of no further use to the Admiralty.

As soon as war was declared, the Curtiss Company, who already had good connection in England, set to work to produce aeroplanes for the British Government. They turned out a number of ordinary biplanes with wheel undercarriages and an 8-cylinder V type water-cooled engine which had been mostly designed by Glenn Curtiss himself.

These machines, which later became world-famous as the Curtiss "Jenny," were not only used for training Navy and Army pilots in this country, but they were also used in thousands in Canada to train British pilots before America came into the war. And later on they were used in still more tens of thousands to train American aviators in the States.

How good they were for their period may be judged by the fact that some of them are still in use to-day, and also by the fact that the Curtiss OX engine, with which they were fitted, is still used in thousands to-day, and it is regarded as being quite one of the most reliable engines in the States, though it is perhaps a trifle heavy and out of date in these days of air-cooled radial engines.

But a far greater service which Glenn Curtiss did to this country was the development of big flying-boats from the experience gained in the design and construction of that original Wanamaker boat.

Before very long quantities of big twin-engined flying-boats were imported to this country. They did magnificent work in coastal patrol both in the Channel and in the North Sea. And ultimately variants of them were built in hundreds in this country under the supervision of Commander John Porte.—These boats, known as the F class, with Rolls-Royce Eagle engines, were the basis of all our big flying-boats to-day—a species of aircraft in which we lead the World. Also numbers of the original Curtiss-built boats have been in use in Canada for fire-patrol and survey work till two or three years ago.

The result of this importation of foreign aircraft was a very discreditable legal affair in which that gallant officer John Porte was prosecuted for receiving commission on the Curtiss output, while a serving officer.

When the prosecution came on John Porte was very ill and was too weak to go into court and make a fight, so he had to let the verdict go by default, and was convicted. The whole thing is one of the most unpleasant incidents in the history of British aviation, of British law and of British governmental ideas of justice. Unfortunately the underlying history of this affair and of the feud which brought on this prosecution and persecution cannot here be made public. I need only say that though John Porte (who was only a pawn in the game) was convicted by the law of the land, he was re-appointed to his command as soon as he was released from custody, was promoted to command the War Flight as well as the Experimental Station at Felixstowe, and was given a C.M.G. Which showed how much the Service thought of the Law. And, though he was already a dying man, John Porte lived long enough to do still more good work, and to know fully that his conviction left no stain on his honour.

That, however, had nothing to do with Glenn Curtiss himself, who was steadily labouring in the United States to produce more and better aircraft and engines for us. And if he made a goodly profit out of that work he thoroughly

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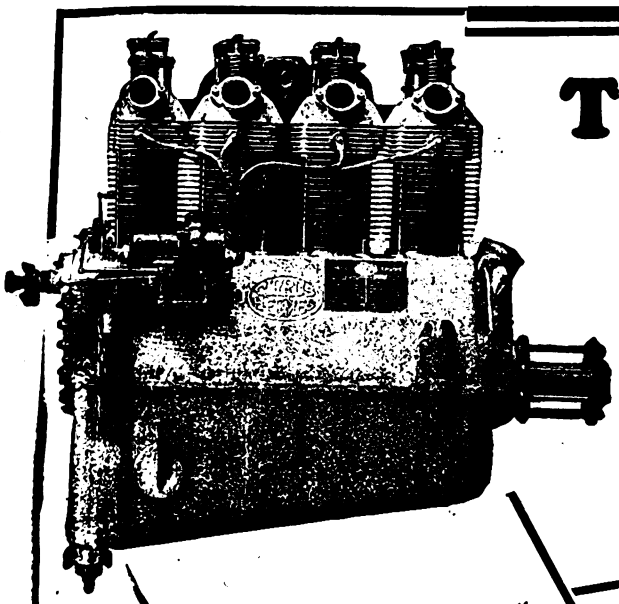

THE OPINIONS of PILOTS

WHO FLEW BEHIND HERMES ENGINES IN THE KING'S CUP RACE.

"The Hermes engine ran magnificently throughout the trip. It was exceedingly smooth running—noticeably so, and I really had to comment on this point to everybody I met."
L. H. SLATTER.

"I am writing you a line to say how very pleased I was with the Hermes engine in my Widgeon during the race for The King's Cup. The engine ran very smoothly during the race, running at 2,240, and never gave me a moment's anxiety, and in addition the attention of your staff at the controls was much appreciated."
R. G. CAZALET.

"This is just to say how well my Hermes behaved in the recent King's Cup Race. Until we went down through a silly miscalculation of the amount of petrol that was required, the engine had been running at full throttle for about seven hours. At each control I felt the sump, and each time it was not hot enough to warrant changing the oil. During the whole race I was getting 2,150 r.p.m., and this did not vary in the slightest from start to finish."
J. F. McKENNA.

"I feel that I owe you a short letter of thanks for having produced the Hermes engine fitted to the Parnall "Elf" which I flew in the last King's Cup Race. Naturally I flew at full throttle the whole way round the course, during which time the r.p.m. were never less than the maximum permissible under the C. of A. The oil pressure remained constant, whilst the oil temperature could have been higher without causing any anxiety. There was such a complete absence of vibration or fuss that I soon forgot that I was flying at full throttle and banished the possibility of engine failure from my mind. Two other features of your engine contributed to my ease of mind during the race. First the ease of starting. A great point when time is short at the controls, and, secondly, the very reasonable petrol consumption at full throttle."
H. A. PRESTO.

"You will doubtless be glad to know that the Hermes in my 'Bluebird' behaved perfectly during the race for the King's Cup. I ran it all-out from start to finish and did not hear even one tiny murmur of protest. At the end it was giving exactly the same number of revs. as at the beginning."
TOM ROSE.

"I am prompted by the faultless manner in which my Hermes engine functioned during the recent King's Cup Race to write this note of added praise. The engine, although running at full throttle throughout the entire race, can only be described as having behaved perfectly. No adjustment of any kind was made, nor was any necessary. The oil pressure remained constant, the oil temperature did not at any time reach 70 degrees centigrade, and the revolutions at the end of the day were the same as at the start. The smoothness with which the engine ran was a very noteworthy point. I hope that you have the success with the Hermes that is deserved, and which has been so universal with the other Cirrus products."
E. W. PERCIVAL.

FURTHER RELIABILITY

5,000 miles course of the International Touring Competition completed to schedule by Mr. S. A. Thorn, flying a Hermes Avian.

SPEED

Capt. E. W. Percival, Flying a Hermes engined Hendy 302 won the Hanworth-Reading-Farnborough-Hanworth Race at an average speed of 128½ m.p.h.

CIRRUS HERMES

CIRRUS AERO ENGINES Ltd.

Regent House

89, KINGSWAY, LONDON, W.C.2.

Telephone :—Holborn 4076. *Cables :—"Ocirruso," London.*

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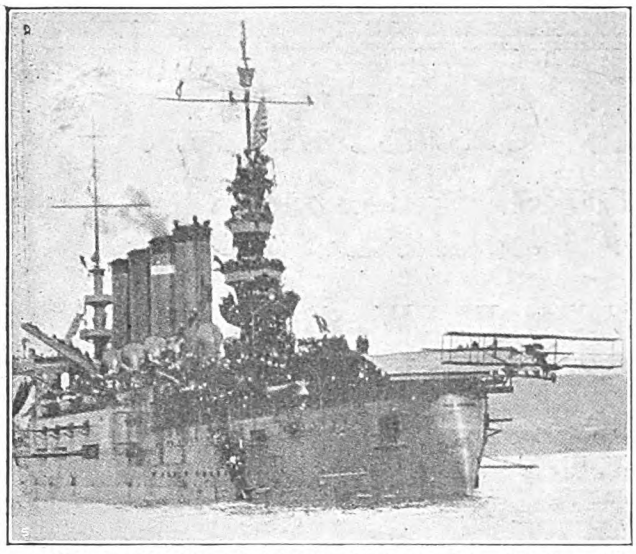


THE SECOND FLY-OFF.—Eugene Ely leaving the U.S.S. "Pennsylvania," December 1910.

deserved every penny of it, if only for the pioneer work he had done in the face of immense odds before the war.

Post-War Activity.

As an inventor and as a producer of aircraft the work of Glenn Curtiss may be said practically to have ceased when the America flying-boat was put into production for the British Navy. He remained a Director of the Curtiss Company and worked very hard with the firm until a few years ago. But he was not the firm's chief technical man, though he was a most highly-valued advisor.

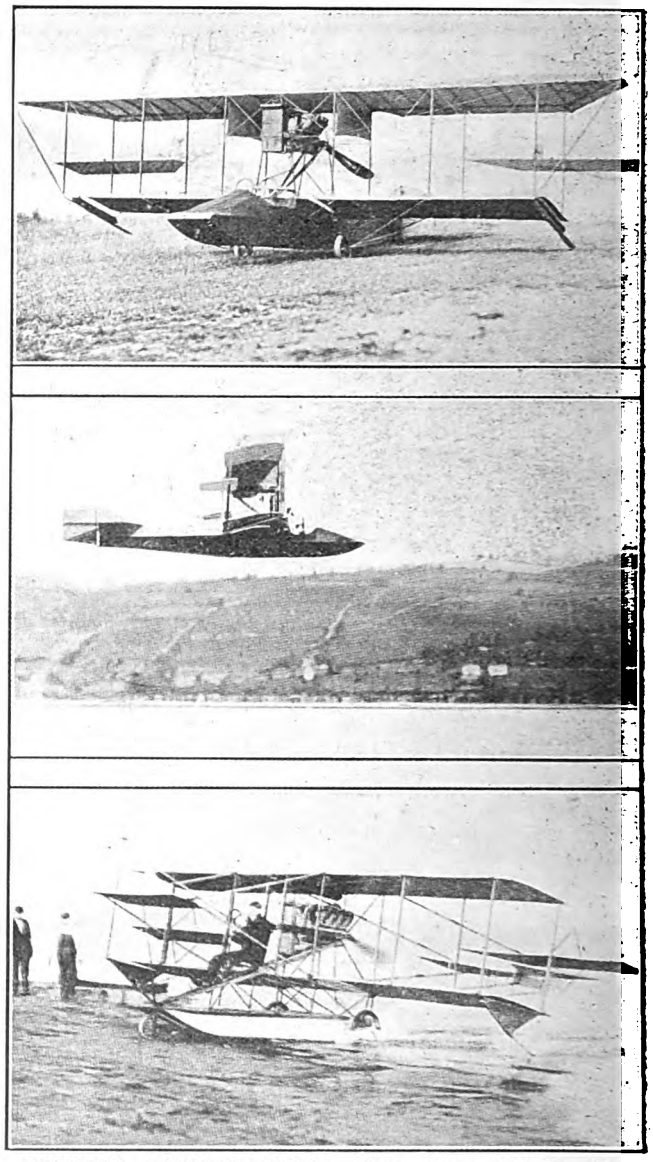
As an engineer, Glenn Curtiss was too much of the rule-of-thumb type to do much when the design of aircraft became approximately scientific. But when highly-skilled engineers like the famous Bill Gillmore took charge of the Curtiss plant, they all took care to have the criticisms of Glenn Curtiss before they settled down to the production of any one model.

Just because he was a first-class mechanic and had a natural eye for an engineering job, these criticisms very often entirely altered the outlook of men who were of the pure and applied science order,—for in the United States scientists are not quite so cocksure of their own inevitable rightness as they are in this and some European countries. And they are a little more apt to believe that a man with experience but without scientific training may know his job.

The Trans-Atlantic Craft.

An example of the way in which Glenn Curtiss influenced the scientists was seen in the production of the four flying-boats which were built for the American Navy in 1919 with the object of flying the Atlantic. These boats were of his original type in that the tails were carried on tail-booms instead of on an extension of the hull. And Curtiss himself had a big hand in modifying the orthodox design. In this he worked closely with Commander John Towers, U.S.N., who was in command of the undertaking, and had already done most valuable work in co-operation with our Royal Naval Air Service during the War.

One of the four boats, the NC4, commanded by Lieut. Read, U.S.N., became the first vehicle to cross the Atlantic by air. It flew from New York to Newfoundland, from Newfoundland to the Azores, from the Azores to Lisbon, and from Lisbon to Plymouth. True, it did the journey in stages and not direct from Newfoundland to Ireland as John Alcock and Arthur Whitten Brown did a few weeks later, but it did do the whole journey by air, and so brought to America the credit of being the first nation to cross the Atlantic by air.

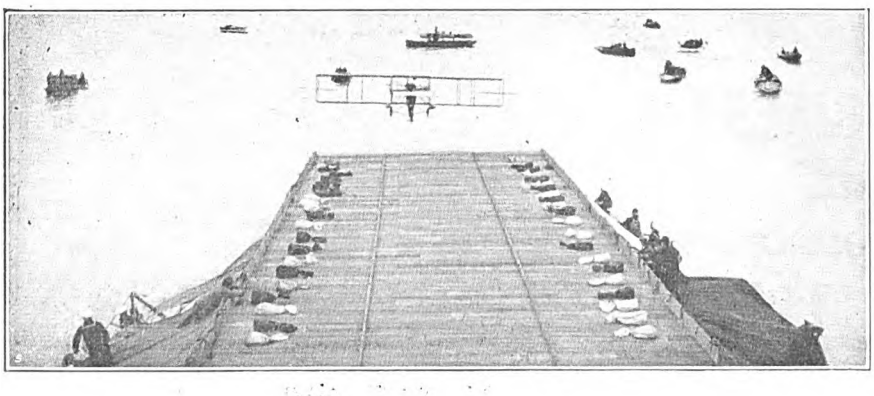


CURTISS FLYING-BOATS.—Top and middle,—the first type of 1912. Bottom,—an amphibian of 1911.

The Later Days.

Shortly after this great feat, when in spite of it the Curtiss Company was in very low water financially, Mr. C. M. Keys, a Canadian who had learned the art of high finance in the States, came along and bought up the Curtiss Company. From that day on Glenn Curtiss took little active part in the work of the firm, though he remained a director and was regarded as a very valuable advisor, not only on pure engineering but on general policy. Glenn Curtiss had a very sane and sound outlook on life and he was an excellent judge of men and affairs. And in that way, as a director, he was most valuable to the new company.

Under the management of Mr. Keys and his associates the Curtiss Company soon became not only the greatest aircraft manufacturing concern in the United States, but the leader of American aviation in every way. They made quite the finest high-speed fighting machines ever built in America, and they made the finest water-cooled engines.



THE FIRST LANDING-ON.—Eugene Ely alighting on the U.S.S. "Pennsylvania," Dec. 1910. Note the arresting cables stretched between sand-bags.

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Curtiss machines won the Schneider Trophy twice—once in this country and once in the States. And to-day, the Curtiss Aeroplane and Motor Corporation remains the leading firm in aviation in the States, and one of the greatest aircraft undertakings in the World. It is indeed a worthy monument to the early work of our friend, Glenn Curtiss.

THE LANDED PROPRIETOR.

With this new development in the Curtiss Company, Glenn Curtiss found himself with time on his hands and went, as so many Americans do, to Florida, for a holiday.

The result of this visit was that he became interested in the development of Florida land. He bought large tracts of land in Miami and identified himself with that rapidly-growing city.

His own particular area was known as Hialea, and there his luck and judgment stood him in as good a stead as it did in aviation. The local golf club chose to put itself on one side of his area and some large city development or other chose the other side, with the result that the property was in immense demand for houses. He was a rich man when he went to Florida and he became richer while he was there. Even the great slump in land values in Florida, though it cost him a good deal of money, did not cause him any acute financial discomfort.

In Florida he turned his originality and inventive genius in all sorts of quaint directions. He designed houses which were not like anybody else's, and he designed motor-cars which were entirely original. One remembers particularly a most interesting motor caravan in which he proposed to go touring, presumably because, being the owner of a couple of magnificent houses, one at Miami and one on Long Island, he longed for the wide open spaces.

Everything seemed to promise Glenn Curtiss leisure and happiness in his old age. When I last saw him he was over here to do some shooting. Just by way of adding to his experience he had hired a grouse moor in Scotland. And there he enjoyed himself mightily. At that time he seemed rather like an active and healthy man of forty than a man of fifty or thereabouts. And nobody would have imagined that he would have been taken from us as he has been.

Still, those of us who knew him best and liked him best must admit that during his life Glenn Curtiss did more for the World and had greater rewards than the majority of us can ever hope to do or to have.

When his fancy ran towards high-speed competitions he won them. When he wished to build aircraft he built the best of their day. When his sympathies turned towards his English relatives in time of war he did more than almost any other one man in the States to help us when we most needed help in his own line of business. And when American aviation got past the point where it interested him exclusively he met with equal success in those things which did interest him. And he died before he had begun to lose interest in anything. That after all is a good life for any man.

THE LANGLEY INCIDENT.

One of the outstanding events in the career of Glenn Curtiss was his complete vindication of the soundness of the theories of the late Professor Langley.

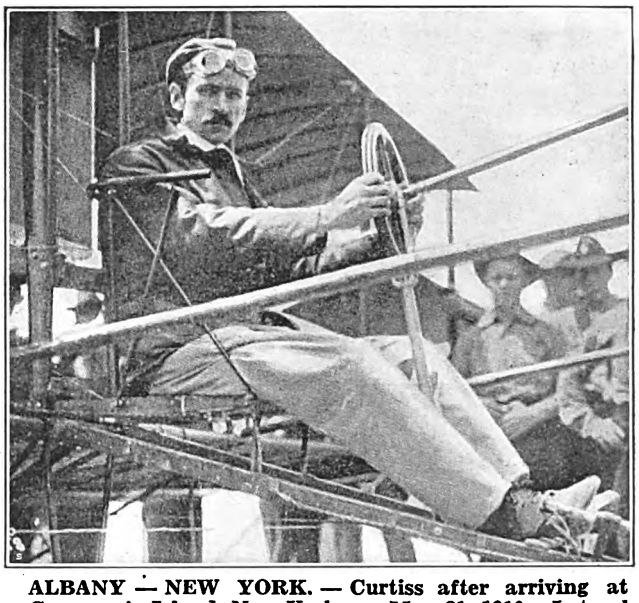
Before the Wrights flew, Professor Langley, of the Smithsonian Institute, built a tandem monoplane, which he called an "aerodrome," as the result of many experiments with models. Unfortunately, owing either to an accident or to structural weakness, it was crashed in an early experimental flight, and Langley died before it could be reconstructed.

Curtiss realised that it embodied sound principles of inherent stability, right outside the Wright patents. So, in 1914, he borrowed the remains of the machine from the Smithsonian Institute, strengthened the weak spots, without in any way altering its aerodynamic principles, put it on floats, and flew it off Lake Keuka, near his home at Hammondsport, with its original engine (an air-cooled radial, designed and built by Mr. Manly of the Smithsonian in 1906 or so).

Further experiments, with a more powerful engine, proved conclusively that, though the Wrights were the first people to fly, Professor Langley designed the first practicable aeroplane.

The result of all this was a feud between the Wrights and the Smithsonian which resulted recently in Mr. Orville Wright taking away from the Smithsonian his re-constructed and re-covered original Wright biplane and placing it on loan in the South Kensington Museum,—where it may now be seen.

There is interest in noting here that the Smithsonian Institute was founded by a brother, or cousin, of that Mr. Smithson who married the last heiress of the great Percy family of Northumberland, adopted the name of Percy, and became Duke of Northumberland. So the new Percys have, or should have, a family interest in the Smithsonian and its doings.



ALBANY — NEW YORK. — Curtiss after arriving at Governor's Island, New York, on May 31, 1910. Lateral control was given by leaning to right or left and moving the shoulder-yoke. The wheel controlled the rudder and elevator, and the engine had a foot-throttle. The flight was made to celebrate the Centenary of Fulton's first steamship voyage down the Hudson River.

CURTISS THE MAN.

As a man Glenn Curtiss was one of the most lovable persons I have ever met. As with all really great men there was a certain simplicity about him which some very cute people on both sides of the Atlantic misunderstood, as indicating lack of cleverness outside his ability as a mechanic. But when a real contest of intelligence came along, then Curtiss was the better man as a rule.

Also he was one of the kindest of men. One of his oldest friends in the States, who in the early days of flying was one of his keenest business competitors, told me a story of him which deserves to be known to the World.

When the early Curtiss biplanes began to get enough business to form something like a commercial company, Glenn Curtiss collected round him all those who had helped him in the earliest days of his flying work. They were good fellows, many of them were good mechanics, all of them loved Glenn Curtiss., and worked for him as they would not work for anyone else. But when the War came and High Finance took hold of the Curtiss Company, and turned what had been an interesting little experimental shop into a vast mass-production factory, all these good fellows found themselves in jobs which they could not possibly hold down.

The men who were put in by the financiers to run the show, men who had had their training in mass-production factories, did their best to use these men to advantage. But many of them were quite hopeless in anything like regular factory work. So one by one they had to be dismissed as gently as possible. What could be done to find jobs elsewhere was done, but they had to go from the Curtiss plant.

Last of all, one who had been with Curtiss from the very start also had to go. He was the last of the old Curtiss Crowd. And one of the men who, much to their regret, had to fire him, went along to Glenn Curtiss' office and told him how sorry he was to have to fire old so-and-so. He suggested that as this official was one of the earliest of the Curtiss Crowd, something might be done to recognise the fact, and he offered to start a subscription among the Directors for a testimonial and to head it with a $50 subscription himself.

Glenn Curtiss looked up from his desk and said, "Don't you trouble. I have taken care of that already." He opened a drawer in his desk and pulled out a handsome gold watch, —ready inscribed with the name of the departing official. He handed it up to the new man and remarked quietly, "I get these watches wholesale,—and I get them engraved on wholesale terms too."

That was typical of Glenn Curtiss. He knew that his old friends had to go, but he did not want to appear to be doing anything about it himself. So he had quietly presented to each of them as he went a gold watch inscribed to indicate the high appreciation of the retiring person's work by the new directors of the company. But that was the first intimation which the new directors had of their own appreciation of the men they had fired.

Much more recently I came across another typical Curtiss act. There is a certain friend of his to whom Glenn

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imagined himself to be considerably indebted for services rendered,—though what was done was simply done out of friendship for Curtiss and admiration for his good work, and not because there was any reward hanging to it. Glenn wanted to show his appreciation, so one day when the Florida land-boom was going strong the friend received a cheque from Curtiss for quite a large sum of money.

With it was a covering letter saying that when the boom at Miami started Curtiss had bought an option on a plot of land in the name of his friend, and that as the boom now seemed to be at its height he had sold the land and the cheque represented the profit thereon. Curtiss argued that the money was not his, as it came out of the pockets of the great American nation, and that therefore his friend need not hesitate to accept it.

Whether that cheque represented merely the quick profits on an option for which Glenn Curtiss never actually paid, or whether it did represent definitely a share of his own profit, the friend never discovered. But when the whole thing was put in such a way there seemed no possibility of refusing Glenn's cheque, sent as it was so kindly and yet with such a curious combination of humour and cute business. Those two little incidents may perhaps give an insight into the character of Glenn Curtiss, which has been so much misunderstood by so many people. His outstanding characteristic was kindness. And perhaps his next most outstanding characteristic was his humour. Behind that he had immense courage, great physical skill and strength, a good sound business head and withall that simplicity which only great men have. Nobody has done more for the progress of flying than has Glenn Curtiss, and few have done as much. He was a good man and a kindly man, and the World is very much poorer for his loss.—C. G. G.

A ROYAL CALL AT YEOVIL.

H.R.H. the Duke of Gloucester, accompanied by his equerry, and piloted by Flt. Lt. E. H. Fielden, in a D.H. Puss-Moth, called at the Westland Aircraft Works at Yeovil on July 21 on his way from Padstow to London. The Puss-Moth was refuelled, and His Royal Highness had an informal cup of tea with Mr. R. A. Bruce.

THE DUCHESS OF BEDFORD AT THE FORUM CLUB.

On Wednesday, July 23, the Aviation Group of the Forum Club gave a dinner in honour of Her Grace the Duchess of Bedford and the crew of *The Spider*, as a recognition of their great flight to India and back in a week.

The President of the Group, the Hon. Lady Bailey, was unfortunately unable to be present as she was flying in the European Air Tour, but the Chairman, the Hon. Mrs. Forbes-Sempill, in the course of a graceful speech of welcome, spoke of the great pleasure it gave the Group to be allowed to pay their homage to Her Grace and to Captain Barnard and Mr. Little.

Her Grace had asked to be excused from making a speech but Captain Barnard, in replying for her, gave a most interesting account of their memorable flight and mentioned that he was trying to persuade the Duchess to make her next flight to Australia and back.

He said that if this came about they hoped to be able to find a suitable British machine to go with the British engine which had served them so well in the past.

Both he and Mr. Fedden of The Bristol Aeroplane Co., who responded for the guests, spoke in glowing terms of the support which Her Grace has given to British Aviation, not only by her financial support but also through her spirit of sportsmanship, which enables her to make light of all the difficulties which must of necessity be encountered on these long flights.

Captain P. D. Acland, lately chairman of the Society of British Aircraft Constructors, proposed the toast of "The Chairman."

THE SCHNEIDER IMBROGLIO. III.

The Royal Aero Club has rejected the entry received from the *Aéro Club de France* for the Schneider Trophy Contest because the entry was not accompanied by the fee of £1,600 required by the conditions laid down by the Schneider Trophy Committee of the Royal Aero Club, and agreed to last January by the *Fédération Aéronautique Internationale.*

The F.A.I. will now probably summon a special meeting to discuss the situation caused by the rejection of the Italian and French entries.

In the meantime the Royal Aero Club will insist on the right conferred on the holder of the Trophy, to hold the contest over the territorial waters of the winning nation;—and, in any case, possession is nine points of the Law.

AIR NAVIGATION LICENCES.

The following candidates were successful at the examination for Air Navigation Licences, Second Class, which was held at the Air Ministry on July 7-9, 1930: R. A. C. Brie, Flt. Lt. M. H. Findlay, T. W. Morton, B. B. Muckleston, Flg. Off. G. J. Powell, Flt Lt. A. R. Prendergast, F. H. Robinson, L. H. Stace, H. G. Travers, and V. G. Wilson.

MISS AMY JOHNSON AND THE AIR MINISTRY.

Air Ministry Notice to Airmen No. 21 of the year 1930 is given in full for those whom it may concern:—

An official reception of Miss Amy Johnson will be held at the Air Port of London (Croydon), on her arrival in Imperial Airways Argosy aircraft G-EBLF on Monday, Aug. 4, at approximately 18.00 hours.

All aircraft which intend to escort this machine to Croydon are advised to assemble at Lympne airport, where the Aerodrome Officer in Charge will inform pilots as to the position of Imperial Airways' aircraft and its expected time of passing Lympne.

All escorting aircraft must observe the provisions of the Air Navigation Order, Schedule IV, Section 3, paragraph 25, with regard to the distance to be maintained between aircraft in the air, viz., 200 yards.

On arrival at Croydon, all escorting aircraft will circle the airport clear of the landing area until the Imperial Airways aircraft has landed.

Escorting aircraft, if intending to land at Croydon, will then land in rotation; the order of landing will be the order of taking off from Lympne, which will be given by the Aerodrome Officer in Charge at that airport.

After landing, escorting aircraft will taxi to a position opposite Hangar C (A.D.C.) in the north-east corner of the airport.

Pilots of aircraft intending to escort the machine should notify the Secretary, Air Ministry (C.A.2), Gwydyr House, Whitehall, S.W.1, as early as possible of their intention, giving the registration mark of the aircraft they intend to use.

All other civil aircraft arriving at Croydon during the ceremony of reception will taxi to a position immediately south of the normal arrival and departure area.

[And some people think that Government Departments have no sense of humour.—ED.]

A CLEAN NOSE.—The Hawker Tomtit with the 105/115 h.p. Cirrus-Hermes engine.—(*"Aeroplane" photograph.*)

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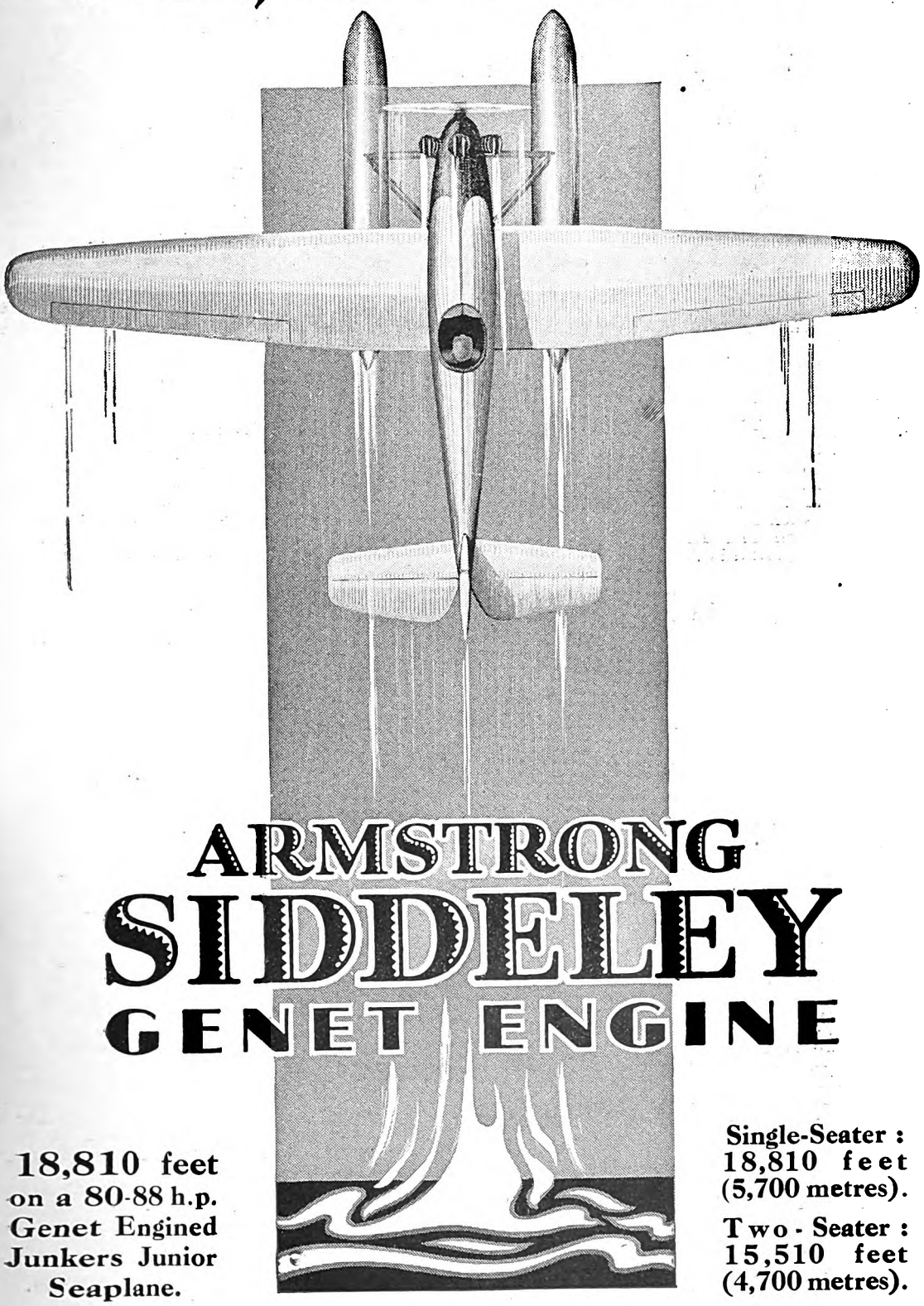
18,810 Feet



ARMSTRONG SIDDELEY GENET ENGINE

18,810 feet on a 80-88 h.p. Genet Engined Junkers Junior Seaplane.

Single-Seater: 18,810 feet (5,700 metres).

Two-Seater: 15,510 feet (4,700 metres).

ARMSTRONG SIDDELEY MOTORS LIMITED, COVENTRY.

London: 10, Old Bond Street, W.1.

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Ldr. A. H. Wann, R.A.F., supernumerary officer, and Mr. M. A. Giblett, M.Sc., meteorological officer. The crew of R.100 is composed entirely of civil personnel, with the exception of two officers and one N.C.O. of the R.A.F. who are seconded for duty on airships.

Wing Cdr. R. B. B. Colmore is on board as Director of Airship Development and Major G. H. Scott, who commanded the R.34 on the first airship flight from England to America and back, is in the airship in his capacity of Assistant Director of Airship Development. The flying crew of the ship consists of the above-mentioned five officers and 32 men.

The only other persons on board are Mr. F. M. McWade, Air Ministry Inspector, Sir Dennistoun Burney and Mr. N. S. Norway, representing the Airship Guarantee Co. Ltd., the builders of R.100, and Lt.-Cdr. R. St. J. Prentice of H.M.S. *Courageous*, representing the Admiralty.

To ensure that the ship is always in communication with a shore base, an elaborate signals system both for long and short wave transmission has been worked out.

Meteorological information will be supplied by the Meteorological Office, Air Ministry, by way of the Air Ministry W/T. station, from the meteorological centre at the Cardington base, from ships at sea, from Greenland, from the U.S. Weather Bureau by way of the Arlington W/T. Station, and from the Canadian Meteorological Office, which has established a forecasting centre at St. Hubert, Montreal.

Special weather charts will also be transmitted experimentally at intervals by the Fultograph process.

Food supplies for five days are being carried. These allow for three days' ordinary rations, one day's reserve rations and one day's emergency rations.

R.100 will probably follow the Great Circle course, which, without deviations, will mean a flight of 3,242 miles, taking her over Birmingham, Dublin, Roscommon and across the Atlantic to the north of Newfoundland, over Anticosti Island and up the St. Lawrence River past Quebec to the St. Hubert base at Montreal.

The St. Hubert Station has a mooring tower similar to the one at Cardington and refuelling and "gassing" facilities have been provided there by the Canadian Government.

THE NORTH EAST COAST AIR ROUTE.

In the House of Commons on July 1, in reply to a question by Lieut.-Commander Kenworthy the Under-Secretary of State for Air said that a subsidy would be required for a civil air service between the North-East coast of England and the Continent and that by agreement the Government could pay a subsidy up to 1939 only to Imperial Airways Ltd. who did not consider a service upon the suggested route commercially practicable.

In the House of Commons on July 8, Lieut.-Cmdr. Kenworthy asked the Secretary of State for Air what subsidy he would be prepared to offer to Imperial Airways Ltd. for operating an air mail service between the North East coast of England and the Continent.

Mr. Montague replied that it would be for Imperial Airways to lay before the Air Ministry detailed proposals for such an air service and to state what additional subsidy, if any, they would require for its operation. Pending the receipt and careful examination of such proposals the Secretary of State for Air was not in a position to state what, if any, subsidy would be given.

Sir N. Grattan-Doyle asked whether Mr. Montague was aware that there was a first-class station at Cramlington and would he not consult with his advisers as to whether such stations should not be encouraged in every way possible. [Perhaps Sir N. Grattan-Doyle would like to explain just what use Cramlington is likely to be as an air-station for Continental traffic? Hull rather than Newcastle seems to be in the best geographical position to handle Continental traffic, and Cramlington is in no wise suitable for the transfer of seaplane traffic to land machines.—C. G. G.]

Mr. Montague said that the whole matter was covered by an agreement of April, 1929.

TECHNICAL TRAINING IN HULL.

The University College of Hull has established a Diploma in Aeronautics. The course is being planned in co-operation with the Hull Technical College, and will cover two years or one year, according to the previous qualifications of the candidates. Those who hold the national certificate in mechanical or electrical engineering will take a two-year course, and for those who are graduates in engineering the course will be one year.

It is hoped that on the basis of this diploma course it will be possible to build a department of aeronautics in which training will be given to provide qualified personnel for the various branches of the Aircraft Industry.

Nothing is said about making Miss Amy Johnson the first Professeuse of Aeronautics, or even of conferring on her the degree of Mistress of Aeronautics, *honoris causa*,—which seems remiss of Hull.

LAND ACQUISITION BY THE AIR MINISTRY.

In the House of Commons on July 9 in reply to a question by Major Glyn, the Under-Secretary of State for Air said that he was not aware that in certain cases officials of the Air Ministry had approached private landowners and offered, under threat of the use of compulsory powers, terms of payment for land to be used as a practice ground for dropping live bombs, before discovering what the effect of such use of land would have on local industries and amenities. He would undertake not to sanction the use of compulsory powers without a previous inquiry into local conditions. Compulsory powers were employed only as a last resort when it had proved impossible to acquire land by voluntary arrangement and he was advised that a threat to use them would not be, and had not been, held out in such circumstances as those referred to.

AN ENTERPRISING AIRSHIP FIRM.

London had a new diversion on July 25 when the AD—1, the small non-rigid airship of the Airship Development Co. Ltd., of Cramlington, Northumberland, navigated busily above the roof-tops and not very far above them. The great attraction was that large banners along each side proclaimed that they could be bought for advertising purposes. The idea went home with the least possible delay and within half an hour the offices of the S.B.A.C. had received an enquiry from an enterprising Piccadilly business firm who wanted to know all about position, prices, and conditions.

The Airship Development Co., whose address is 39, Victoria Street, S.W.1, told the writer that they had been overwhelmed with enquiries and that business looked excellent. The AD-1 had been flown down from Cramlington by way of Grantham and the east coast to the old airship station at Capel between Folkestone and Dover. Here the sheds are now used for motor-bus repairs and so there was not room for the airship. This was finally parked in the old Admiralty mooring-out pit nearby. For the London campaign the airship is being moored at Horsley Towers, once the home of Mr. T. O. M. Sopwith.

During the past eight months considerable work has been done on the little airship at Cramlington. Certificate of Airworthiness No. L/A4 has been issued to this aircraft following successful Air Ministry official trials.

The Winter months had been devoted to improvements in the car and these in the main consist of the following:—

(1) A third cockpit to utilise some of the extra lift found available during official trials in excess of the figure estimated.

(2) Hand starting gear and priming pump to facilitate re-starting the engine in the air when necessary.

(3) Coil ignition in addition to the magneto.

(4) Dual elevator and rudder controls, primarily for training whereby these controls are at all times under the supervision of the pilot-instructor.

A slightly larger diameter airscrew has been fitted, to give increased forward speed, but the owners are still handicapped by the absence of an aero-engine for airships, as existing engines are too high in r.p.m.

The owners hope, however, to embody an attachment to the "Hornet" engine reducing r.p.m. on the airscrew to approximately 1,000, which they believe would give an added forward speed to the A.D.I. airship of from 3 to 5 miles per hour

As regards similar size airships, they find that a car to accommodate four persons and a certain amount of light freight can be fitted to the A.D.I. type of envelope for normal commercial use, and such an aircraft would have an endurance of fifteen hours' flying with normal tankage. They have designed three alternative cars to meet the requirements of various markets. These embody the open type, the semi-enclosed and the enclosed cabin types.

No doubt readers will be interested to learn that the owners propose to open a training school for pilots in conjunction with other parties.

The owners believe that aerial navigation instruction can be given more efficiently in these small airships than with high-speed aeroplane, as by turning the airship head to wind, the speed can be reduced almost to zero and accurate observations can be taken.

IMPORTANT DATES.

Aug. 7.—International Touring Competition ends at Staaken (Berlin).
Aug. 17.—I.O.W. Flying Club Meet at Shanklin.
Aug. 30.—Liverpool-Manchester Air Race for Cundiff Trophy.
Aug. 30.—Bedfordshire Aero Club Display, Goldington.
Sept. 1—6.—International Congress on Air Navigation at The Hague.
Sept. 6.—Official opening of Mr. Lindsay Everard's private aerodrome at Ratcliffe, Leicester.
Sept. 6.—Bristol Air Garden Party to the British Association.
Sept. 20.—Liverpool Air Pageant (Liverpool and District Aero Club and Lancashire Aero Club) (with R.A.F. support).
Sept. 27.—Air Meeting at Hanworth.
Nov. 28—Dec. 14.—International Aero Exhibition in Paris.

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THE ROYAL AIR FORCE.

The London Gazette.

Air Ministry, July 25.

ROYAL AIR FORCE.

GENERAL DUTIES BRANCH.—The following are granted S.S. comns. as *Plt.* Offs. on probation with effect from and with seniority of July 12:—R. Hanson, H. J. L. Hawkins, A. H. Hole, T. A. Jefferson, A. F. McKenna, D. H. Marsack, J. W. Martin, F. G. Mason (Lt., 6th *Bn. Duke of* Wellington's Regt., T.A.), C. L. Monckton, M. A. Payn (Sec. Lt., 1st Bn., Essex Regt., S.R.O.), H. N. G. Ramsbottom-Isherwood, I. G. Ross, C. B. Smith, E. C. Smith-Ross, C. P. Villiers.

The following Plt. Offs. on probation are confirmed in rank (June 28):—G. E. Agard-Butler, N. Alexander, F. C. Allen, C. A. Ball, G. Bearne, G. Calvert, N. J. Capper, I. A. Critchley, C. H. Glover, D. H. A. Golege-Steel, W. E. Grant, D. C. Harrison, A. H. Houghton, G. M. Ievers, F. J. B. Keast, D. W. Lydall, I. L. S. McNicol, C. E. Morse, J. T. Mynors, B. Paddon, H. G. J. Purcell, J. M. Waddell, G. N. Warrington, G. E. S. Williams.

Flt. Lt. H. Hackney is placed on the retired list on account of ill-health (July 23).

The following Flg. Offs. are transferred to the Reserve (July 18):—*Class A*: P. E. Grenfell, A. E. Hill, and F. G. S. Wilson. Class C: J. C. Lewis, and J. N. Young. Flg. Off. R. A. R. Robinson relinquishes his S.S. comn. on account of ill-health (July 23). The S.S. comn. of Plt. Off. on probation J. W. P. Armitage is terminated on cessation of duty (July 17). The S.S. comn. of Plt. Off. on probation R. D. Cotton is terminated on cessation of duty (June 28). (Substituted for the notification in the *Gazette* of July 8.)

MEDICAL BRANCH.—Flt. Lt. H. O. Sumerling, L.D.S., is promoted to rank of Sq. Ldr. (Dental) on promotion to Maj. in the Army Dental Corps (July 8).

RESERVE OF AIR FORCE OFFICERS.

GENERAL DUTIES BRANCH.—The following are granted comns. in Class A.A. (ii) as Plt. Offs. on probation:—E. A. Beale, S. T. R. *Hemsted*, P. T. Stephens, J. C. Ticehurst (July 7). F. E. Cowlrick (July 8).

The following Plt. Offs. on probation are confirmed in rank:—R. D. Bednell (June 13); A. C. Buck (June 20); C. P. S. Smith (June 20); R. G. Shaw (June 21); W. Clarke (June 24); R. S. Sikes (June 24); I. B. Sherring (June 26); K. Shenstone (June 27); E. C. Fieldsend (July 1); N. D. B. Wood (July 1); D. Hay (July 3); E. G. *Villiers* (July 8); J. P. Dewsbery (July 15); D. J. L. Bryden (July 16); J. Leigh (July 17); C. H. N. L'Estrange (July 17); R. M. Henning (July 18); C. Bland (July 18).

Flg. Off. J. E. Davies is transferred from Class A. to Class C. (July 17); Flg. Off. J. Reekie is transferred from Class A.A. (ii) to Class C. (July 22); Flg. Off. G. Clapham, A.F.C., is transferred from *Class C. to Class A.* (May 13); Flg. Off. J. H. C. Harrold is transferred from Class C. to Class B. (June 10).

The following Flg. Offs. relinquish their comns. on completion of service:—C. E. Kelly (June 23); A. D. Drysdale (June 27).

Flt. Lt. (Hon. Wing Cdr.) H. Wyllie, O.B.E., relinquishes his comn. on completion of service and is granted permission to retain the honorary rank of Wing Cdr. (June 30).

Appointments.

Week ending July 28.

GENERAL DUTIES BRANCH.—Group Captain R. E. C. Peirse, D.S.O., A.F.C., to H.Q., Coastal Area, for Air Staff duties, on transfer to Home Establishment, 16/6.

Squadron Leaders A. T. Williams, O.B.E., to H.Q., Coastal Area, 21 7. B. McEntegart, to R.A.F. Base, Calshot, 8/7.

Flight Lieutenants T. W. S. Brown, to No. 36 Sqdn., Donibristle, 21/7. G. A. Hadley, to R.A.F. Base, Gosport, 14/7.

Flying Officers J. G. Llewelyn, to R.A.F. Base, Gosport, 8/7. H. M. G. Parker, to R.A.F. Base, Calshot, 8/7. G. C. Butler, to R.A.F. Base, Calshot, 8/7. R. L. Bennet, to R.A.F. Base, Calshot, 8/7. D. F. Satchwell, to R.A.F. Base, Calshot, 8/7.

Pilot Officers N. R. G. Hunter, to C.F.S., Wittering, 19/7. M. V. de Satge, to No. 605 Sqdn., Castle Bromwich, 21/7. The following are all posted to R.A.F. Depot, Uxbridge, on appointment to S.S. Comns. with effect from 12/7:—R. Hanson, H. J. L. Hawkins, A. H. Hole, T. A. Jefferson, A. F. McKenna, D. H. Marsack, J. W. Martin, F. G. Mason, C. L. Monckton, M. A. Payn, H. N. G. Ramsbottom-Isherwood, I. G. Ross, C. B. Smith, E. C. Smith-Ross, C. P. Villiers.

MEDICAL BRANCH.—Flight Lieutenants C. P. O'Tolle, to R.A.F. Practice Camp, Catfoss, 22/7. P. J. Nyhan, to R.A.F. Depot, Uxbridge, 25/7.

STORES BRANCH.—Wing Commander F. A. Baldwin, to R.A.F. Depot, Uxbridge, 14/7.

Squadron Leader H. L. Woolveridge, to H.Q., A.D.G.B., Uxbridge, 18/7.

Flying Officers F. H. Bedford, M.C., M.M., to R.A.F. Depot, Uxbridge, 14/7. R. A. London, R.C.A.F., to H.A.D., Henlow, 1/8.

The Air Exercises.

The Air Exercises this year will be held about the middle of August and will take place over the greater part of England. At present great secrecy is being maintained, but one is permitted to give a vague outline of the proceedings.

England will be divided into two halves and the Units of what is normally the Air Defence of Great Britain will be divided into two Air Forces. Each Air Force will have some Fighter Squadrons and some Bomber Squadrons, but in one Air Force the Fighters will predominate and in the other Air Force the Bombers will predominate. Beyond the fact that these units will be operating, the Exercises have nothing to do with the Air Defence of Great Britain. There will be no attempt to attack or defend London and the Observer Corps will not be working. There will be no Army Co-operation Squadrons and no Flying-Boat Squadrons taking part in the Exercises and the only Ground Forces will be a few Anti-Aircraft Searchlight formations.

The scheme is based on an imaginary problem that might occur overseas.

A Fatal Accident.

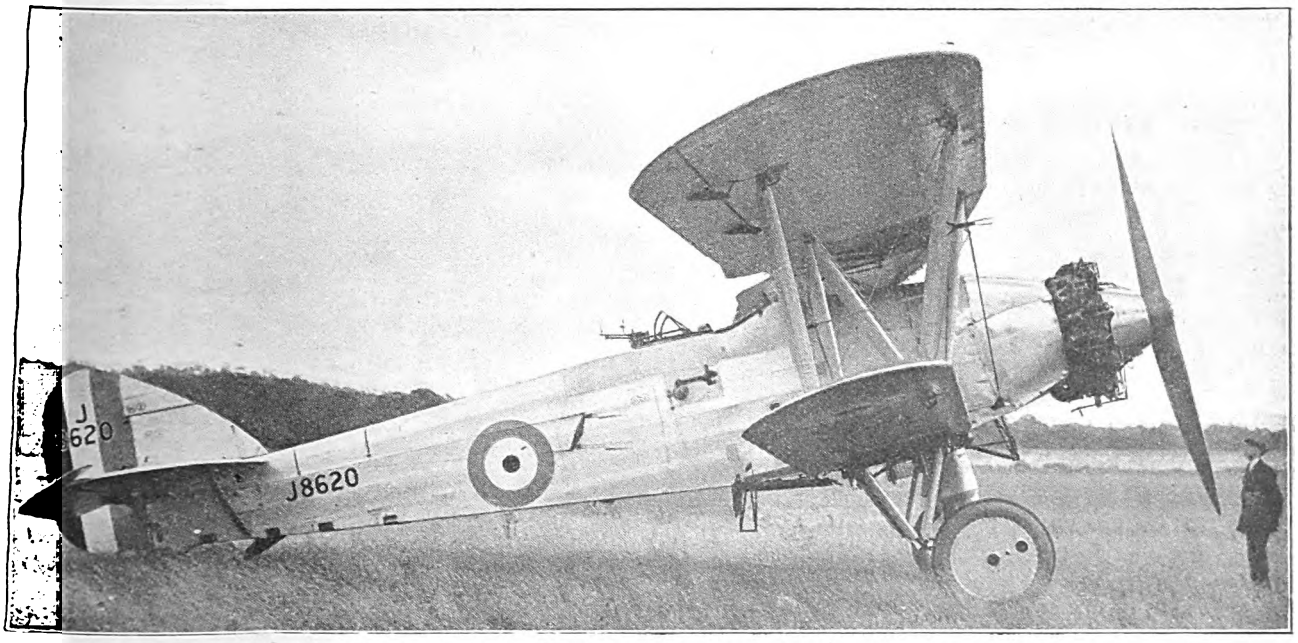
The Air Ministry regrets to announce that as the result of an accident at Khormaksar, Aden, to a Fairey 3F machine of No. 8 (Bomber) Squadron, Khormaksar, on July 26, Flg. Off. Geoffrey Norman Pilcher, the pilot of the aircraft, and No. 507565 L-AC. Robert Angus Laidler were killed.

The R.A.F. Staff College Course for 1931.

The following officers have been selected for the Ninth Course at the R.A.F. Staff College, beginning in January 1931:—

Squadron Leaders A. C. Collier, C. W. Mackey, A. E. Sutton-Jones, H. E. P. Wigglesworth.

Flight Lieutenants G. C. A. Armstrong, J. W. Baker, J. C. Barra-



FOR SINGAPORE?—The latest version of the Hawker Horsley (850 h.p. Armstrong Siddeley Leopard). The Horsley (Rolls-Royce Condor) is the equipment of No. 36 (Torpedo-Bomber) Squadron, R.A.F., which is going to Singapore. —(*"Aeroplane" photograph.*)

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clough, G. W. Birkinshaw, J. S. Chick, E. D. H. Davies, R. A. George, H. N. Hampton, F. L. B. Hebbert, H. G. W. Lock, A. H. Love, P. L. Plant, C. E. V. Porter, E. H. Searle, F. A. Skoulding, G. F. Smylie, W. E. Theak, A. R. Wardle.

Officers who qualified at the 1929, 1930 and 1931 examinations but have not been selected for the course at the Staff College, will be considered for the 1932 course. The selection for that course will be published at a later date.

A report on the 1930 examination will be issued shortly.

The following officers of the Royal Australian Air Force passed the qualifying examination:—

Flight Lieutenants J. P. McCauley, T. A. Swinbourne.

The following officer of the Royal Canadian Air Force passed the qualifying examination:—

Flight Lieutenant G. A. Merser.

The names of officers nominated by each Dominion to attend the Ninth Course will be published at a later date.

The Gordon Shephard Memorial Prize Essay.

The following will be the subject of the Gordon Shephard Memorial Prize Essay for 1930-31:—

(*a*) Discuss the importance to the army of night reconnaissance by air.

(*b*) Assuming existing types of aircraft and equipment.

(i) describe the best method of meeting the night reconnaissance requirements of the army under the organisation outlined in the War Manual, Part I, Chapter XII;

(ii) if you consider that night reconnaissance could be made more effective than it is likely to be under the system referred to in (i), outline your suggestion for organisation and training. What effect will your proposals have on the ability of the R.A.F. to meet other army requirements?

(*c*) Describe very briefly the directions in which you think aircraft and equipment might be improved for night reconnaissance purposes, without sacrificing efficiency in other directions.

Essays in triplicate should be forwarded to the Secretary, Air Ministry, in envelopes marked *Gordon Shephard Memorial Essay* 1930-31, in time to reach him on or before Feb. 1, 1931.

Absence from Quarters.

An Air Ministry Order announces that as an experimental measure the following temporary modifications of existing regulations have been approved and will be brought into effect on and from Sept. 1, 1930, in all commands at home:—

Absence from quarters (K.R. & A.C.I., para. 1406, clause 3).

(i) Airmen (other than apprentices) will, subject to the discretion of the C.O. in individual cases, be permitted without a pass to remain out of camp from after duty until midnight on Friday, Saturday and Sunday evenings.

(ii) Before proceeding on leave or pass, an airman will not be required to state on his leave or pass form where he is going, unless notification of his destination is necessary to enable him to procure a ticket at reduced fare. Airmen are, however, held responsible that they leave an address or addresses at which orders will reach them promptly (K.R. & A.C.I., para. 1399, clause 3).

The Wearing of Plain Clothes.

An Air Ministry Order announces that as an experimental measure the following temporary modification of existing regulations have been approved and will be brought into effect on and from Sept. 1, 1930, in all commands at home:—

Wearing of plain clothes (K.R. & A.C.I., para. 203A).

(i) Plain clothes may be worn by officers, warrant officers and N.C.Os. not below the rank of serjeant, when not on duty.

(ii) It is left to the discretion of C.Os. to grant to corporals, and to aircraftmen of good character, permission to wear plain clothes:—(*a*) for purposes of recreation; (*b*) when on leave or pass; (*c*) when "walking out" at their station.

(iii) Permission granted under (ii) (*b*) or (*c*) above will be entered on the leave or pass form (including permanent pass) and initialled by the officer granting it.

The Limitation of Aircraft Carriers.

In the House of Commons on July 21, in reply to a question by Sir Bertram Falle, the Prime Minister said that Article 4 of the Treaty for the Limitation and Reduction of Naval Armaments, which prohibits the construction of certain types of aircraft carriers in this country, applied to private shipyards, but it was not a restriction at all, because other types would be built in substitution.

The Officers' Advisory Society.

The Officers' Advisory Society is an organisation which has been formed to enable all commissioned officers of His Majesty's Forces, both serving and retired, and their families, to obtain free preliminary advice upon civilian matters and, where necessary, expert professional assistance at reduced fees.

The management of the society is vested in a council consisting of the following:—

Field Marshal Sir Claud W. Jacob, G.C.B., K.C.S.I., K.C.M.G., Chairman. Admiral Sir Herbert W. Richmond, K.C.B. Air Vice-Marshal C. A. H. Longcroft, C.B., C.M.G., D.S.O., A.F.C. (retd.). Lieut.-Colonel H. C. Stevens (retd.). Lieut.-Colonel V. R. Cotter (retd.). D. Knight, Secretary.

The rates of subscription are as follows:—

For officers of and above the rank of lieut.-commander, major and squadron leader—two guineas. For officers below these ranks—one guinea. For retired officers—according to the rank held on retirement. For widows and unmarried daughters of deceased officers (irrespective of the officer's rank at the time of his death)—one guinea. *Only one subscription is required and this secures life membership.*

Further particulars of the society, together with forms of application for membership, can be obtained from The Secretary, The Officers' Advisory Society, 3-4, Lincoln's Inn Fields, London, W.C.2.

THE TORPEDO BOMBER.—The Hawker Horsley with the 850 h.p. Armstrong Siddeley Leopard engine.
—("*Aeroplane*" *photograph.*)

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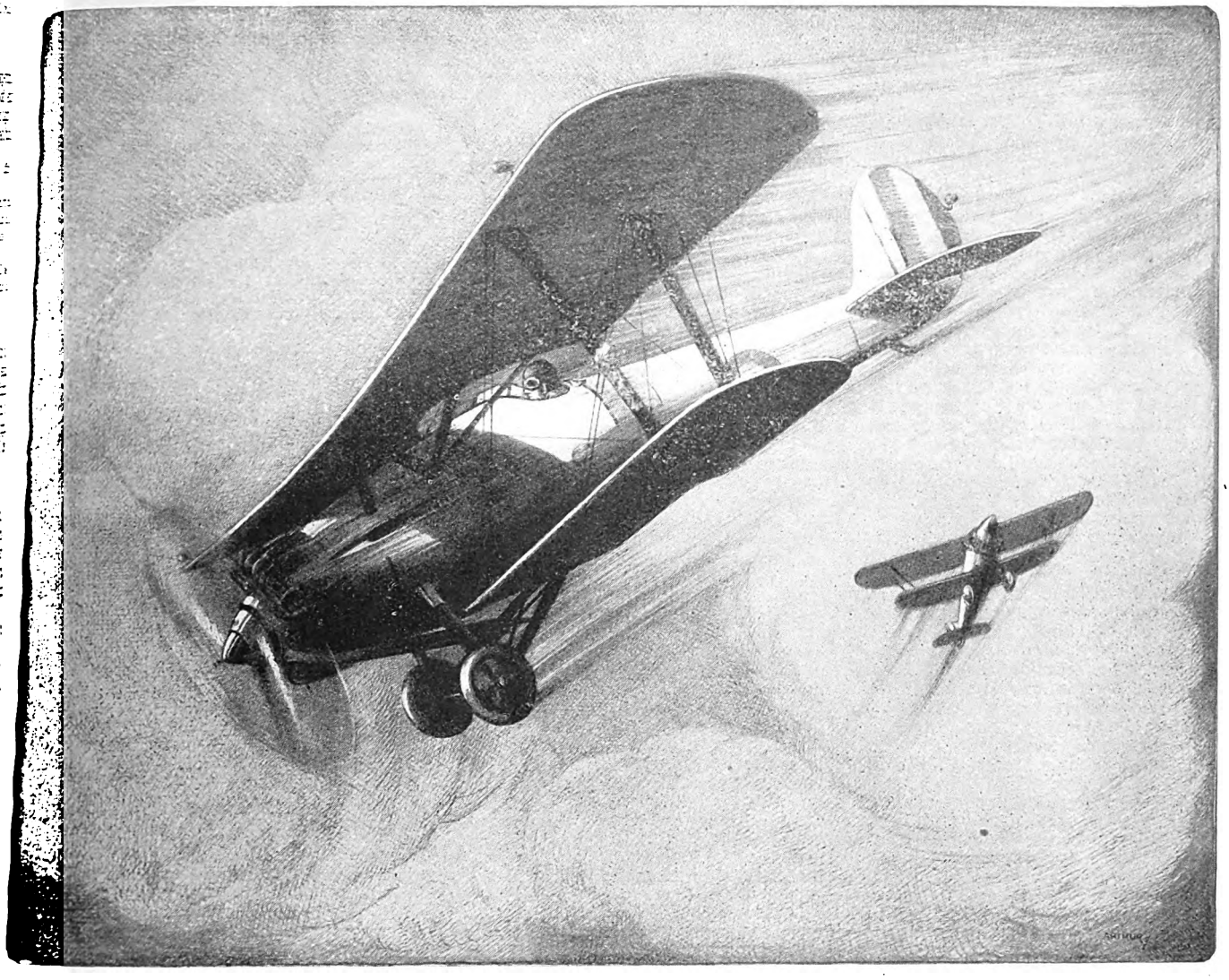

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The Inspection of Cadets at Cranwell.

The Passing-out Inspection of Cadets of the Royal Air Force College was held by Air Vice-Marshal E. R. Ludlow-Hewitt, C.B., C.M.G., D.S.O., M.C., Commandant of the R.A.F. Staff College, at Cranwell on July 25.

Air Vice-Marshal Ludlow-Hewitt was received with the Air Salute and then reviewed the Cadet Wing on the College Parade Ground. After the inspection of the Cadets and airmen the Cadet Wing marched past under Flight Cadet Under-Officer P. B. Coote, whose Squadron, "B" Squadron, as Champion Squadron-at-Arms, paraded on the right of the line.

The drill and march discipline of the Cadets was remarkably fine and proves what a high standard can be attained by the concentrated effort of all concerned. If marching and drill were the main instead of a very minor part of the training of R.A.F. Cadets it could not have been better. Mention should also be made to the part played in the Parade by the Cranwell Station Band under Mr. A. E. Halford, whose interpretation of the beautiful and dignified music selected for the marching and drill intervals was beyond praise.

When the Cadet Wing had marched off they were followed by the Aircraft Apprentices of the Electrical and Wireless School with their own Band, whose Inspection was held several days later.

Air Vice-Marshal Ludlow-Hewitt then inspected the work of the Flight Cadets in the Instructional Workshops. In these Workshops the Flight Cadet learns enough about the construction and repair of aircraft and engines to enable him to appreciate and understand the work of the aircraftmen who will serve under him in the future.

An inspection of the Flight Cadets of the Senior Term and the aircraft of the Cadet Wing was then held in front of the sheds. The aircraft were lined up on the aerodrome by Flights and included Avro Training machines, Armstrong Whitworth Atlases which have replaced the D.H.9as for Cadet training, Bristol Fighters and Armstrong Whitworth Siskins, between thirty and forty machines in all.

The personnel of the Station, the Cadets and the visitors then assembled in the gymnasium for the presentation of the prizes.

The Commandant of the R.A.F. College, Air Vice-Marshal A. M. Longmore, C.B., D.S.O., in the course of his Report said that the strength of the College was 118, only 2 short of the original authorised establishment of the College. Next September the organisation of the Cadet Wing would be altered from two to three Cadet Squadrons. Since the formation of the College in 1920, 468 Cadets had graduated.

Discipline had been good on the whole but disciplinary action had been taken in the case of two Cadets for disobedience of flying regulations. The Under Officers and Non-commissioned Officers of the Senior Term had carried out their duties with zeal. The standard of drill achieved by both Squadrons had been very good indeed.

The 21 Cadets of the Fourth Term had averaged approximately 11 hours' flying per Cadet during that course. The general standard of flying had been well maintained and the Chief Flying Instructor of the C.F.S. had commented on the high standard of skill and accuracy shown in straight flying and in aerobatics.

He recorded with regret three serious accidents during the period under report. In two of these Cadets had been involved and one of them had been fatally injured. This was the first fatal flying accident to a Cadet since April 1928 and only eight such accidents had occurred to Cadets in the course of 45,000 hours (about 3 million miles) since the inauguration of the College.

The increasing number of Cadets and the higher average flying time being done by each Cadet had caused steps to be taken to reduce the congestion by taking over additional landing grounds near the main aerodrome and by making use of Waddington aerodrome for certain forms of training. From next term an officer was to be appointed as Chief Flying Instructor in sole charge of all flying training.

During the last two months D.H.9a aeroplanes had been replaced by Atlas machines and all Cadets now passing out on Army Co-operation or Day Bomber types had flown solo on the Atlas before graduation. The maintenance of aircraft by Flights and Workshops had been remarked upon favourably by the Commandant of the C.F.S.

At a conference to consider whether the latest methods of education and instruction recently introduced at Sandhurst could be usefully applied to Cranwell it had been decided that the general lines of training at Cranwell had been for some time much the same as those adopted at Sandhurst.

In Humanistic Subjects the Term passing out had worked well with few exceptions. The Library continued to increase in size and usefulness and provision had been made for a clerk.

The Flight Cadets of the Fourth Term had written theses on advanced aeronautical subjects. A series of lectures on Metallurgy would be included in the syllabus of instruction next term.

A high standard of work in aeronautical engineering had been maintained. Further instruction in metal aircraft instruction would be introduced next term.

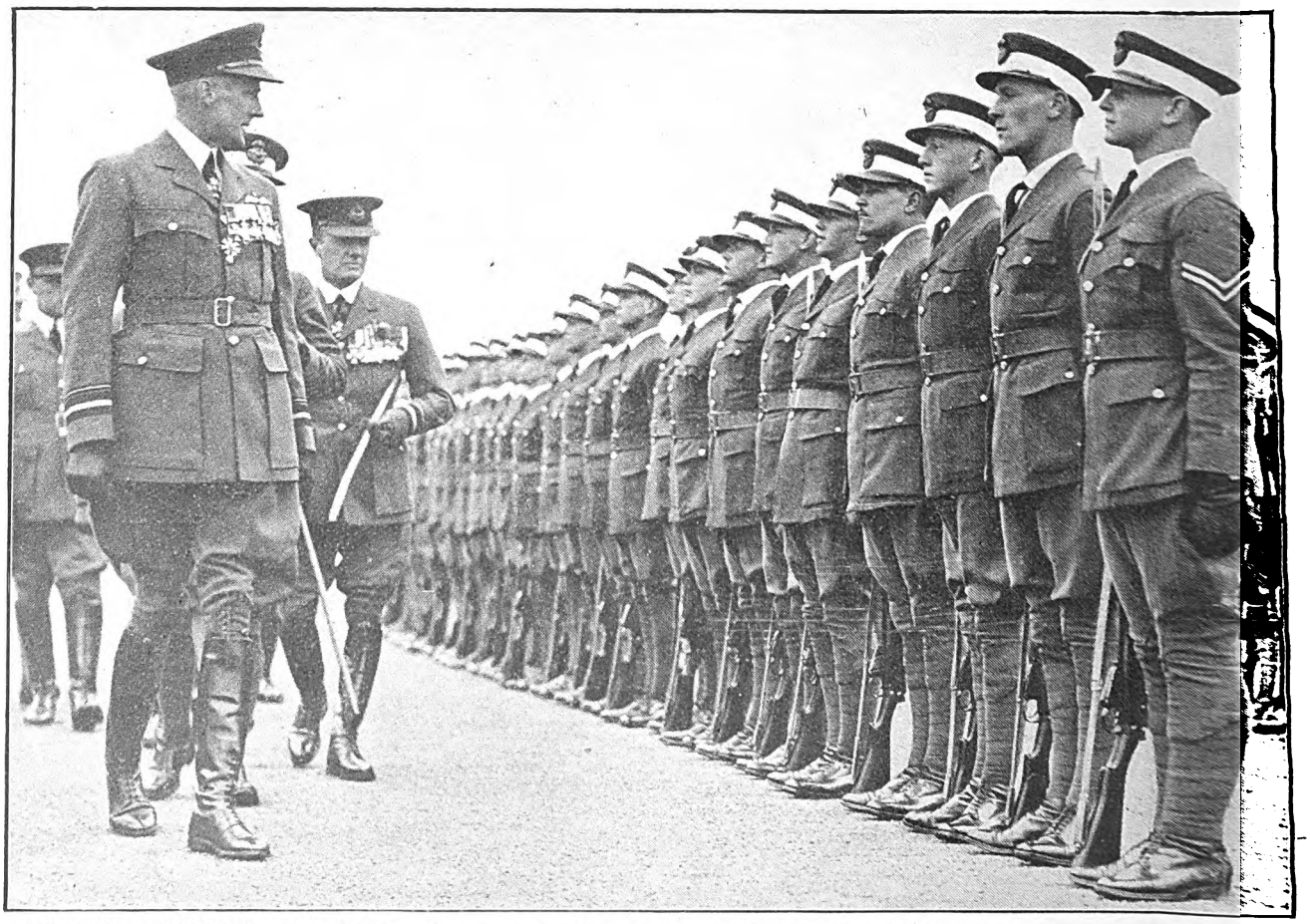
Work in Armament had been satisfactory. The Maori Cup for the best individual score in inter-Squadron miniature rifle shooting had been won by Flt. Cdt. M. W. S. Robinson with a score of 1,674 out of a possible 1,800. The Sassoon Cup for the highest individual score in the Inter-Squadron Pistol Competition had been won by Flt. Cdt. N. C. Walker.

Work in Air Pilotage and Meteorology and in Signals had progressed satisfactorily.

Cadets of the Fourth Term had received instructional lectures on parachute-packing and inspection and on methods of jumping, and one Cadet who had got into difficulties in the air had abandoned his machine and descended without injury by parachute.

The College, had, this term, adopted full armorial bearings.

The standard of physical training had been very satisfactory and



SUPERNA PETIMUS.—Air Vice-Marshal E. R. Ludlow-Hewitt, C.B., C.M.G., D.S.O., M.C., accompanied by Air Vice-Marshal A. M. Longmore, C.B., D.S.O., inspecting the Cadets of the R.A.F. College.

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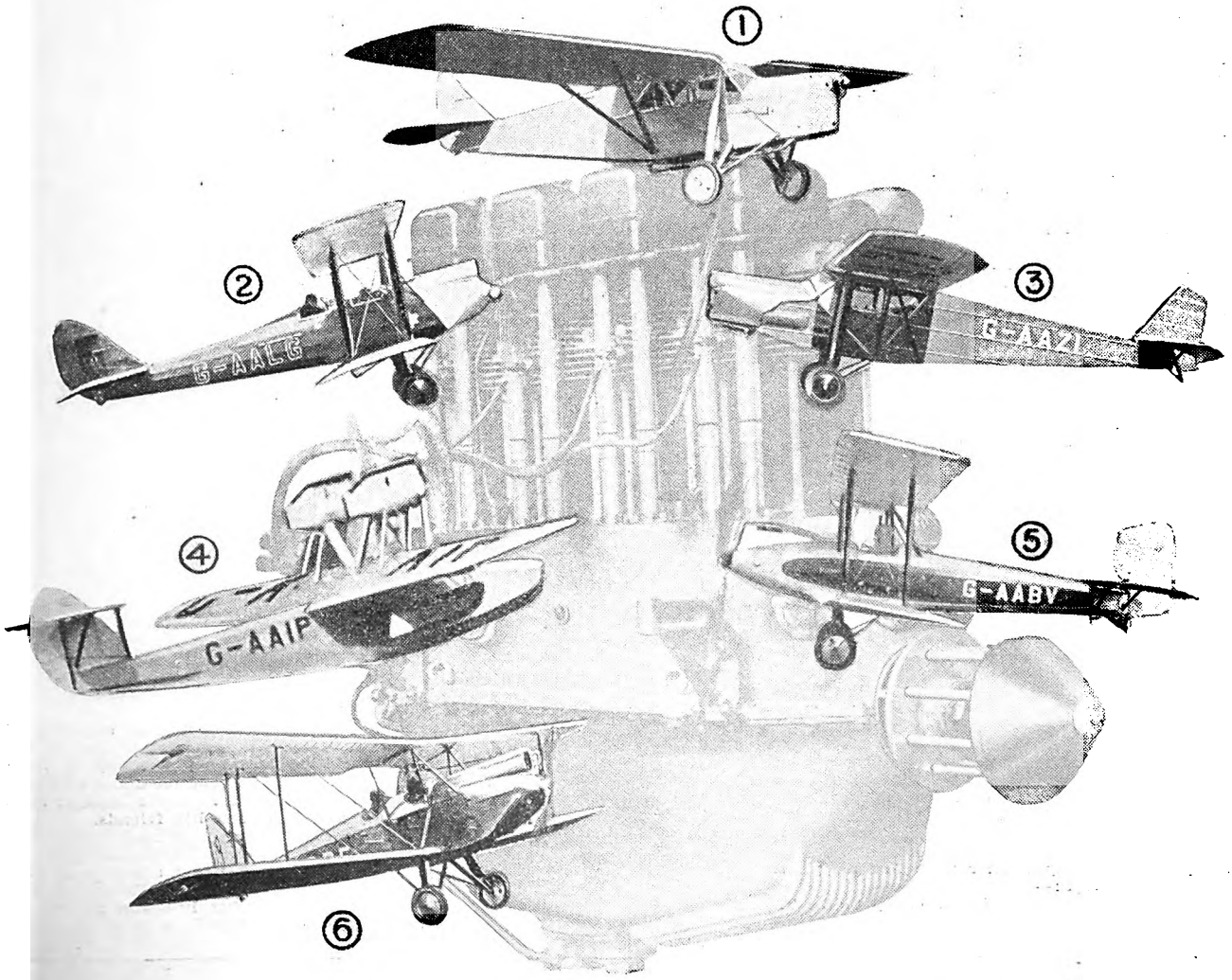
THE DRIVING FORCE



1 PUSS MOTH
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2. GIPSY MOTH
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3. DESOUTTER MARK 11
(120 h.p. Gipsy 111 engine). Desoutter Aircraft Co., Ltd., Croydon Aerodrome, London, S.W.

4. CUTTY SARK
(Two 100 h.p. Gipsy 1 or two 120 h.p. Gipsy 11 engines). Saunders-Roe Ltd., East Cowes, Isle-of-Wight.

5. BLUEBIRD
(100 h.p. Gipsy 1 or 120 h.p. Gipsy 11 engine). Auto-Auctions, Ltd., 3 Burlington Gardens, Old Bond Street, London, W.1.

6. SPARTAN
(100 h.p. Gipsy 1 or 120 h.p. Gipsy 11 engine). Spartan Aircraft Ltd., Weston, Southampton.

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"B" Squadron had only won the competition by 149 points to 147. Boxing had reached a creditable standard. Three skill-at-arms contests had been fought, all of which had been lost. The standard of cricket had not been as high as in the previous season. A number of Cadets had taken advantage of the facilities offered by the Cranwell Hunt Club and the Beagles had concluded a uniformly successful season

Air Vice-Marshal Ludlow Hewitt then presented the prizes as follows:—

Inter-Squadron Competitions: The Godman Riding Trophy to "B" Squadron: The Athletic Cup to "B" Squadron: The Cross-Country Cup to "A" Squadron: The Physical Training Cup to "B" Squadron: The Drill Trophy (presented by Flt. Lt. A. Ferris) to "B" Squadron: The Cricket Cup to "A" Squadron: The Chimay Challenge Cup to "B" Squadron: The Trenchard Cup to "B" Squadron.

Individual Prizes: The Sword of Honour to Flt. Cdt. Under Officer P. B. Coote: The R.M. Groves Memorial Prize for the best all-round pilot in the Senior Term to Flt. Cdt. Sjt. G. D. Stephenson: The prize for the highest marks in humanistic subjects to Flt. Cdt. T. U. C. Shirley: The prize for the highest marks in aeronautical engineering to Flt. Cdt. Under Officer P. B. Coote: The Abdy Gerrard Fellows Memorial Prize for the highest marks in mathematics and science to Flt. Cdt. Cpl. D. V. Angell.

Air Vice-Marshal Ludlow-Hewitt, addressing the Cadets, said that there had been a great many changes and developments in the College since he had first known it in 1920. It had established a fine reputation in many ways, in the playing fields and, more important still, a good flying reputation. He wanted the Cadets to realise how easily a good reputation could be spoilt by a small minority and by simple unconsidered acts. The R.A.F. were particularly in the public eye. they could not help being conspicuous in the air. The Service should set an example to the rest of the flying world. Indiscreet flying was seen by hundreds of people who in turn told hundreds of others, resulting in a cumulation of hostile criticism. The prestige of the R.A.F. was more in the hands of the Cadets than in those of the senior officers.

He was absolutely satisfied with what he had seen that morning and he thought that the prestige of the R.A.F. was safe in the hands of the Fourth Term. Everybody was very keen on flying, which was as it should be. But flying by itself was not much use when it came to War. The Cadets had been taught to use the aeroplane as a weapon of war and he begged them now that they were leaving the College for the Service to concentrate on improving their knowledge, not only as pilots but as officers,—the difference being that pilots only flew but officers directed operations. Flying alone was definitely a waste of time and public money. They should go up with a definite object and they would become better pilots because they were concentrating on something else.

He also told them to show their regard for their technical training by keeping it up. There was a tendency among officers to set aside their technical knowledge and leave that side to the airmen. This was not good enough. They should not leave it to the expert or to anyone else to see that their aircraft and their engine was all right. Officers who really understood technical subjects were a great stimulus to efficiency. It was an unfortunate position for officers to be put into the position of having to command men whose work they did not understand.

He pointed out that the first ten years in the Service were the most important years of their lives. He begged them to keep themselves free of family ties for these first ten years.

[As Kipling says:—

"Down to Gehenna or up to the Throne
"He travels the fastest who travels alone."

And Lord Kitchener had no use for married subalterns.—Ed.]

He congratulated the Prize Winners and he wished to all those who were passing out the utmost keenness and success in their work.

During the afternoon Air Vice-Marshal Ludlow-Hewitt flew himself back to Andover.—C. M. MCA.

Major A. J. Dawes.

The following tribute to the late Major A. J. Dawes has been written by one of his many friends:—

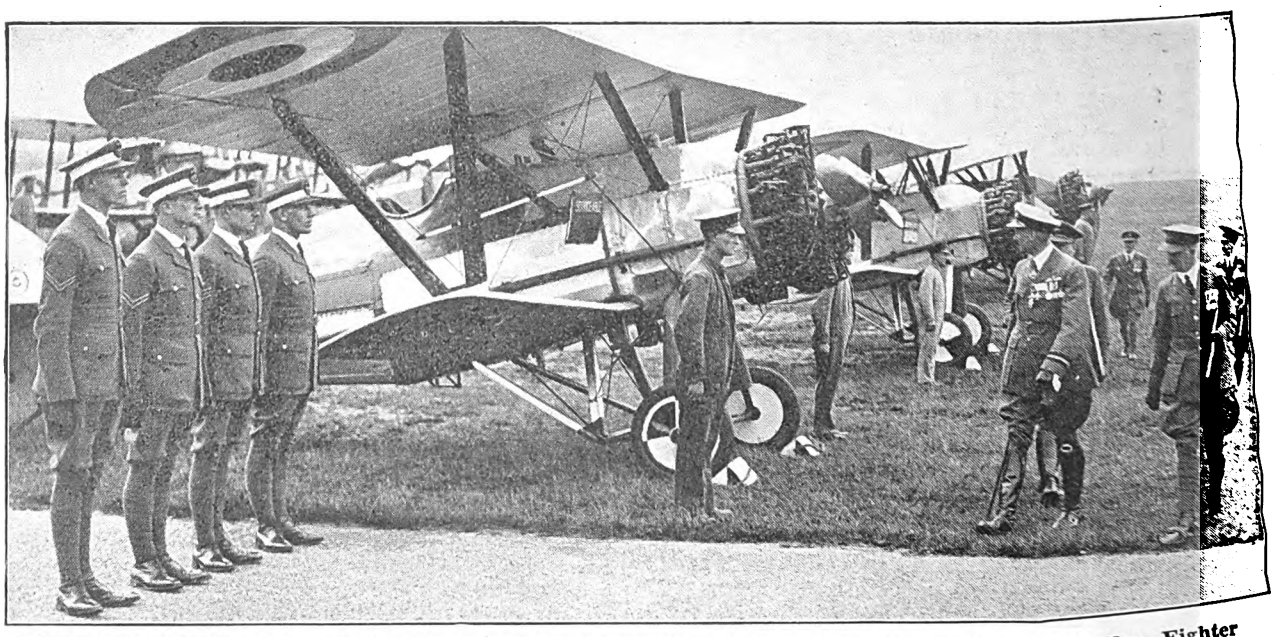
The news of the sudden death of Major A. J. Dawes on July 20 at Cranwell came as a great shock to the Station where he had served for the last eleven years. The loss of his great character will be felt throughout the Service.

Arthur James Dawes was born at Brighton in 1869. He enlisted as a young man and served with distinction with The South Wales Borderers and with the Grenadier Guards and was selected to be an instructor to Eton College and later to Sandhurst. For these services he was awarded the Medal of the Victorian Order.

After the War 1914-18 he was appointed to a commission in the R.A.F. and posted to the Boys' Wing at Cranwell. On his retirement he was appointed Secretary of the Cadets' Mess. Strictly speaking his duty was to cater for the College and to supervise its interior economy. But these duties, easily carried out though never neglected, soon became merely two among many others which he undertook.

We think of "Daddy" as he will always be remembered with affection, umpiring hour after hour at cricket in the hot sun, referee-ing at hockey and soccer, judging—with a large pipe in his mouth—swimming, polo, and boxing; starting races on the stadium, mounted on a war-horse to chase the fox. playing Father Christmas and many other station activities. But most of all we shall think of him as the fountain-head of wisdom and friendship,—a man with a practical philosophy of life who thought and spoke with judgment and humour on many subjects. His way of life and the ramifications of his interests brought him into touch with many and they at once became his friends.

"Daddy" Dawes was buried at Cranwell with full military honours on July 22 in the presence of many friends and the great number of wreaths was a testimony to the respect and affection in which he was held. We offer our sincere sympathy to Mrs. Dawes and we trust that it will be some solace to her that her husband died in harness and full of honours, a man with many friends and no enemies.



THE FIGHTER FLIGHT.—Air Vice-Marshal E. R. Ludlow-Hewitt inspecting the machines of the Fighter Flight at Cranwell on July 25. The Cadet nearest to the Siskin is Flt. Cadet Under Officer P. B. Coote, the winner of the Sword of Honour and of the Prize for Aeronautical Engineering.

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The illustration shows one of the four Supermarine-Napier Southampton Flying Boats which journeyed to Australia in 1928.

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AERONAUTICAL ENGINEERING

SUPPLEMENT TO "THE AEROPLANE"

THE AIRCRAFT IN THE CHALLENGE DE TOURISME INTERNATIONAL.

The European Air Tour, which ended so far as the touring is concerned on Sunday last, is by far the most important Light Aeroplane Competition of this or any other year. The flying qualities of the competing aircraft have been tested on a 7,500-mile circuit of Europe, and they are now undergoing a technical examination in Berlin.

The conditions of the competition and reports of the earlier stages of the European Tour have already been described in THE AEROPLANE. Hereafter follow short descriptions of the various competing aircraft that have passed through Heston in the early stages of the tour.

THE DE HAVILLAND GIPSY-MOTHS.

*K*5.—This machine is entered and flown by Mr. A. S. Butler and is the same machine which he flew in the King's Cup Race.

It has a Gipsy II engine, which is completely enclosed in a cowling with tumble-home sides which merge into the slightly-domed sides of the fuselage. The cross-section of the fuselage in the region of the cockpits is roughly that of an egg with the smaller end uppermost. Cooling air enters a slot on the left side of the front of the cowling and after passing the cylinders through the system of deflectors which forms the standard equipment for the Gipsy II engine passes out again through a very narrow slit left between the end of the engine cowling and the fuselage proper.

The front seat is covered with transparent material to conform to the lines of the fuselage, but a hole is left in the roof for the passenger to put his head through if necessary. The back seat is fitted with a domed windscreen which covers about half the cockpit opening. Behind the pilot's head the decking of the fuselage is roughly triangular, with a rounded top, to form a streamlined headrest and this runs aft to merge into the fin. The centre-section of the upper plane which houses a small gravity tank, is carried on three sets of transverse Vee struts, the apices of which are located on the centre-line of the fuselage decking. The upper ends of the Vee struts are attached to the centre-section spars in the normal way and these attachments are braced to the top fuselage longerons by vertical streamline wires in the same place as the struts. In side elevation these Vees are disposed as are the normal Moth centre-section struts, that is, two vertically with the third as a forward diagonal bracing to the front struts, to obviate the necessity of wire cross-bracing in the side panels and so leave the front cockpit free of bracing.

Mr. Butler averaged 129.7 m.p.h. in the King's Cup Race but the substitution of a standard Moth divided-axle undercarriage for the small cross-axle type, the re-installation of the wing-folding apparatus, and the method of checking in machines for elapsed time over the various stages will result in the average speed in the Round Europe contest being somewhere nearer 120 m.p.h.

*K*3.—The machine is entered by the De Havilland Aircraft Co., Ltd., and is flown by Mr. Hubert Broad. It is the same Gipsy-Moth which Mr. Broad flew round France last year to win the *Coupe Zénith,* but has several modifications.

The front cockpit accommodation has been enlarged and it now has a very low coupé top, the top line of which continues aft to merge with the fin. The pilot's cockpit is open but has a domed windscreen similar to that fitted on Mr. Butler's Moth. This machine has normal wings and centre-section and the standard Gipsy II engine cowling.

*K*6.—This machine is entered and flown by the Hon. Lady Bailey and is a perfectly standard Gipsy-Moth with Handley Page automatic slots, the only British machine in the contest so fitted.

*K*8.—Miss Spooner is flying the coupé Gipsy-Moth which Mr. Broad flew in last year's *Challenge de Tourisme International.* This machine has a very low coupé top and a streamlined centre-section tank with the main fuel tank in the fuselage. A very complete set of instruments is carried which include a turn-indicator and an Askania compass of extremely neat and compact design.

*T*5.—This machine, baptised "España," is entered and flown by the Archduke Antoine of Habsburg-Bourbon, and is the same machine in which its owner has toured all over Europe. It shows proof of its "continent-trotting" by having painted on its rudder the itinerary of its last big European tour.

It is a perfectly standard Gipsy-Moth and that its owner may have no qualms concerning its ground manœuvres on the present European circuit a spare airscrew is lashed to the side of the fuselage, in accordance with the rules which govern the possible changing of this essential piece of apparatus.

*T*7.—Another Spanish Moth, this time entered by the Duque de Estremera and flown by Señor Ansaldo. It is a standard Coupé Gipsy-Moth with the moveable portions of the coupé roof removed. It is named "La Pilarica."

THE AVRO AVIAN.

*K*1.—The only Avian in the contest is the Hermes Avian belonging to Cirrus Aero-Engines, Ltd., and is flown by Mr. S. A. Thorn. It is perfectly standard and therefore calls for no comment.

THE SPARTAN ARROW.

*K*4.—The Arrow is the latest product of Spartan Aircraft Ltd. It differs from the original Spartan in that the symmetrical section wings which were interchangeable all round have now been replaced by wings with the Clark Y "H" section which has a slightly turned-up trailing edge and a more or less stable centre of pressure.

The new wings are now only changeable up and down on

A FRENCH CONTENDER.—M. Ludovic Arrachart in his Caudron (Renault) monoplane. —(*"Aeroplane" photograph.*)

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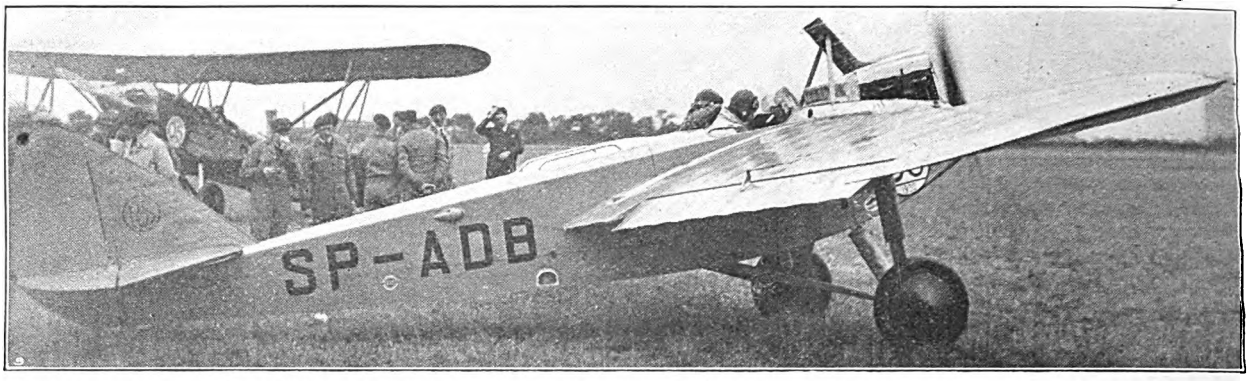


A POLISH MIDDLE-WING.—M. Babinski and his com panion in the P.W.S.50 (Cirrus III) landing at Heston during the Round-Europe Flight. —(*"Aeroplane" photograph.*)

each side, but a special "key" wing can now be supplied which will replace any one of the four wings in the event of an emergency.

Other interchangeable features of this machine are the sides of the undercarriage, the elevators and all four ailerons and the flying and landing wires.

The engine is a D.H. Gipsy II with the standard Gipsy cowling. The undercarriage is of the standard Spartan divided type and the wheels are fitted with the new Palmer brakes.

The Mono Special.

*K*7.—The Mono-Special is the only machine of American origin in the contest. It is made by the Mono Aircraft Corpn., of Moline, Illinois. It is a two-seat side-by-side cabin monoplane with the 110 h.p. Warner Scarab seven-cylinder radial air-cooled engine, which is surrounded by a Townend type cowling ring. The petrol consumption is very high, but this may possibly be abnormal, because of some error in adjusting the carburettor.

The monoplane wing is attached direct to the top of the fuselage by four bolts and is braced to the bottom of the fuselage by sloping Vee struts. The apices of the Vee struts are interconnected by a steel tube passing through the bottom of the fuselage.

It has a door on the right side and an openable window on the left, beside the pilot. This window opens outwards from the top. The roof of the cabin, which is formed by the top surface of the wing, is provided with large transparent panels.

The undercarriage is of the divided type, and the wheels are Goodrich Silvertowns with balloon tyres and wheel brakes.

The construction is typically American, with welded steel tube fuselage and wood wing covered with fabric. The guaranteed top speed of the Mono Special is 120 m.p.h. without Townend ring and its selling price in the U.S.A. is $3,375 (£675). The external finish in yellow and black is both striking and good.

The Caudron C.193.

*L*3, *M*1, *and M*2.—The C.193 is a low-wing cantilever monoplane of all-wood construction with the 95 h.p. four-cylinder in-line air-cooled Renault engine. The entire machine is covered with plywood and the general appearance of it is one of cleanliness and solidity,—and yet it must be light, for it looks much bigger and heavier than any of the other machines.

The wing consists of a thick stub-section on each side of the fuselage and two outer sections which taper in chord and thickness to the tips. The only visible bracing to the wings are two drag-tubes which run from the bottom corners of the fireproof bulkhead to the undercarriage fittings on the roots of the front spars of the stub-sections. The narrow chord ailerons are operated entirely from within the wings.

The tail unit is of pure cantilever construction.

The undercarriage is of the divided type with the vertical compression-legs running up to the ends of the stub-section front-spar, and axles and radius rods running to the bottom fuselage longerons.

The engine-mounting consists of two diamond-shaped welded steel tube girders anchored at the back along the bottom edge of the fireproof bulkhead, with the front ends suspended from the top of the bulkhead by two tubes, one on either side. The whole of the weight of the engine depends on two welded joints where the ends of the side-tubes are welded to the front ends of the bearers.

The engine is completely enclosed and cooling air enters a hole in the nose and passes out of slits between the back edge of the cowling and the fuselage.

The cockpit openings have permanent fabric covers which have "Zip" fasteners round the sides and front edge and also down the middle. The openings may therefore be covered up when the machine is pegged out in the open, or one may be closed when the machine is flown as a single-seater. Similarly the crew may shut the edges and put their heads through the middle openings to keep out the cold and keep in the heat.

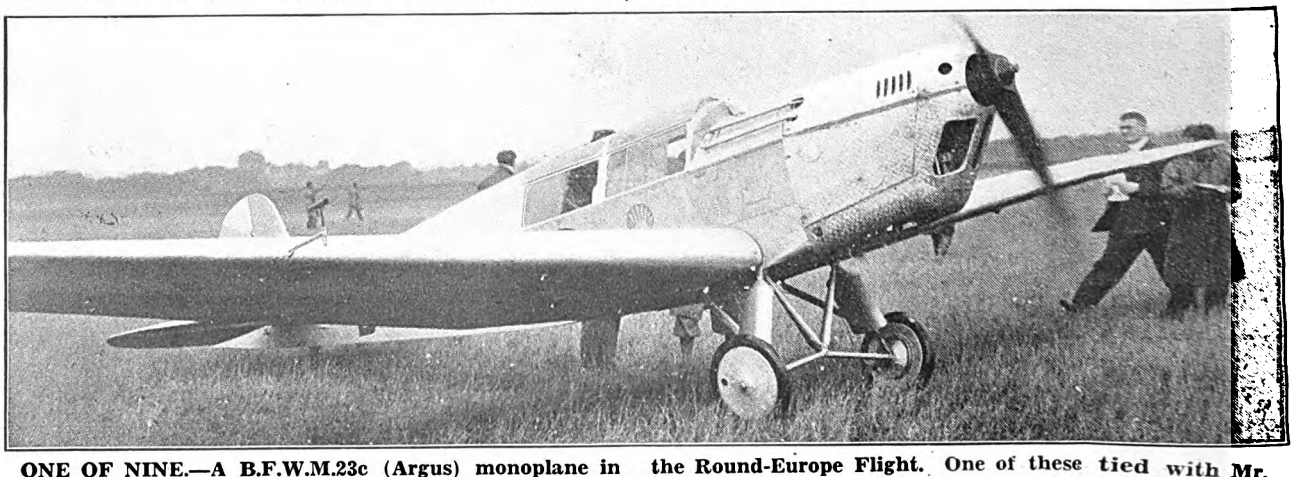
The Caudron C.232.

*M*6.—The C.232 appears to be a Caudron version of the Moth. This machine was put into quantity-production in March of this year. It is a two-seat single-bay biplane of all-wood construction with the 95 h.p. Renault four-cylinder-in-line air-cooled engine. The fuselage and the cantilever tail unit are covered with plywood.

The wings are of semi-thick section with no stagger and the trailing edge is finished off with wire which gives the characteristically French scallop effect. The inter-plane and centre-section struts are of wood, but the front centre-section struts are braced forward by diagonal steel tubes to eliminate cross-bracing in the side bays.

The undercarriage is of the divided type similar to that fitted to the C.193, but the top fittings of the vertical compression legs are braced to the top fuselage longerons by diagonal struts, one on each side. As with the C.193, wheel-brakes are fitted.

A brief specification of this machine is as follows:—Span 11.2 m. (36 ft. 8 in.), Length 7.87 m. (25 ft. 9½ in.), Wing area 24 sq. m. (258 sq. ft.), Weight empty 420 kgs. (924 lbs.), Weight loaded 700 kgs. (1,540 lbs.), Speed, max., 165 km.p.h. (102.4 m.p.h.), Cruising speed 135 km.p.h. (83.8 m.p.h.), Landing speed 72 km.p.h. (44.7 m.p.h.).



ONE OF NINE.—A B.F.W.M.23c (Argus) monoplane in the Round-Europe Flight. One of these tied with Mr. Carberry for third place in speed. —(*"Aeroplane" photograph.*)

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by FIAT Light Plane in 9 days 6 hours

Signor Lombardi flying a Fiat A.S.1 touring type machine fitted with a model A.50 Fiat 85 h.p. engine has flown from Vercelli near Turin to Tokio in 9 days 6 hours using Castrol.

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The nose of the B.M.W.M.23c (Argus engine) flown by Herr Kruger.—(*"Aeroplane" photograph.*)

ft. 3 in.), Length (Siemens) 7.2 m. (23 ft. 7½ in.), Weight empty 322 kgs. (709 lbs.), Weight loaded 700 kgs. (1,542 lbs), Speed, max. (Argus) 175 km.p.h. (108.7 m.p.h.), Speed, max. (Siemens) 168 km.p.h. (104.4 m.p.h.).

The Klemm L.25a.

*B*7.—This is a standard Klemm with a 40 h.p. Salmson radial air-cooled engine. This engine is surrounded by a diminutive Townend ring and except for this the machine is standard.

The Klemm L.25 Ia.

*D*7.—This is a standard two-seat Klemm with the 60 h.p. B.M.W.-X five-cylinder air-cooled radial engine. This is a very neat little engine of small overall diameter (83 × 80 m/m. bore and stroke).

To the technical eye it shows distinct evidence of Pratt and Whitney practice, particularly in the design of the cylinders, cylinder-heads and enclosed valve-gear. The fact that the B.M.W. company holds the Pratt and Whitney licence for Continental Europe probably accounts for this.

The Klemm L.25 IVa.

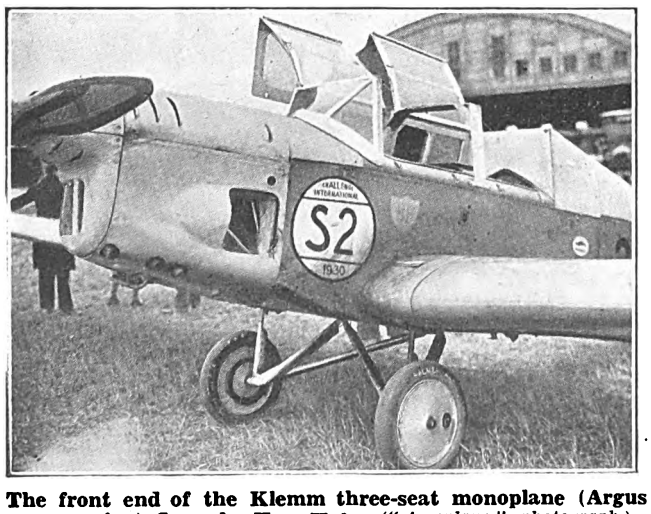
*D*5 *and E*1.—These are standard two-seater Klemms with the 80 h.p. Armstrong Siddeley Genet radial air-cooled engine,—which engine is well and favourably known to readers of this paper all over the World.

The Klemm L.25E.

*A*2, *B*8, *B*9, *C*1, *S*2.—The L.25e is a cabin version of the larger of the well-known Klemm monoplanes and has the 80/100 h.p. Argus As.8 inverted air-cooled engine.

The most novel feature of the type is the method of covering-in the cockpits. Over the forward end of the fuselage are several inverted "U"-shaped transparent panels which are finished off forward with a domed wind-screen and aft with a duralumin tail-piece which streamlines the excrescence into the decking of the fuselage. Those panels which are above the cockpits slide over one another in runners on the top longerons, backward over the front cockpit and forward over the rear cockpit,—thus leaving the cockpits free of any obstruction.

When all the panels are closed the coupé top represents a slug-like growth on the top of a normal Klemm fuselage. This device was obviously fashioned to gain marks for "limousine" comfort. Actually it provides an extremely



The front end of the Klemm three-seat monoplane (Argus engine) flown by Herr Kolp.—(*"Aeroplane" photograph.*)

The nose of the Klemm L.25 Ia monoplane (B.M.W. engine) entered by the Leichtflugzeugklub Munchen.—(*"Aeroplane" photograph.*)

simple and practical cabin conversion for a normal low-wing monoplane with open cockpits.

This cabin conversion applies to all entries of this type except S2, which is a three-seat Klemm with a more permanent "glass-house" of rectangular form with transparent panels in duralumin frames. The panels over the cockpits hinge up and over from left to right and the side windows are openable for ventilation.

The Klemm L.26.

*E*6.—The L.26 is a standard Klemm with the 72/89 h.p. Siemens Sh.13 air-cooled radial engine.

The Darmstadt D.18.

*D*4.—The Darmstadt D.18 is a cantilever biplane with extremely advanced ideas of cleanliness and streamlining. It has been designed by Herr Fecher and built in the workshops of the Akademische Fliegergruppe Darmstadt, which group was formed ten years ago by the Darmstadt Technical High School to allow students to familiarise themselves with aeronautical technical problems. A student cannot become a member of the group unless he has done at least 300 hours in the school workshops.

The fuselage is of oval section and is built up on three longerons and a series of vertical and diagonal formers with plywood covering. To qualify for marks for "limousine" comfort a cabin top has been built onto the fuselage. The cabin top extends up to the top wing and the transparent sides slope inwards until they almost meet at the top. Those portions of this top which cover the cockpits each fold over in one piece to the right to give access to the seats. The pilot says that it is no faster with this top than it was when open.

The wings are each built up round a single spar. They have plywood covering from the spar forward round the leading edge, and aft they are covered with fabric. Ailerons are mounted on the bottom plane only and are hinged to a false spar. Each wing is attached to the fuselage by three conical bolts to simplify dismantling, and they are set at a very acute stagger.

The tail-unit is a cantilever with the fin built integral with the fuselage. Fin and tail-plane are covered with plywood and rudder and elevators with fabric.

The undercarriage is of the divided type. The compression legs are anchored half-way up the sides of the fuselage and the half-axles and forwardly-inclined radius-rods are hinged to the centre-line of the underside of the fuselage. Wheel brakes are fitted.

The engine is a 100/110 h.p. Armstrong Siddeley Genet-Major.

The following is a brief specification of the D.18:—Span 7.2 m. (23 ft. 6 in), length 6.35 m. (20 ft. 9 in.), wing area 12.1 sq. m. (130 sq. ft.), weight empty 340 kgs. (748 lbs.), weight loaded 580 kgs. (1,276 lbs.), speed, max. 218 k.m.p.h. (135.3 m.p.h.), landing speed 70 k.m.p.h. (43.5 m.p.h.).

The Arado L.IIa.

B4, C9, D1.—The Arado L.IIa is a high-wing cabin monoplane with the 80/100 h.p. Argus inverted engine. The cabin has side-by-side seating and is very roomy. The roominess is enhanced by the use of an overhead control-column, which leaves the legs of the crew free from any obstruction.

The machines are being flown with single control, but the socket for the column which is hinged centrally in the roof is branched so that a second column may be inserted if required. Apart from freeing the legs of the crew from obstruction, this arrangement simplifies the lay-out of the controls, as the cables to the ailerons and elevators run straight along the wing or top of the fuselage respectively from the end of the socket of the control-column. A sloping wind-screen, a transparent roof and large side-doors on each side, which have deep unglazed openings, give the cabin an air of roominess and airiness.

The fuselage is of welded steel tube with fabric covering.

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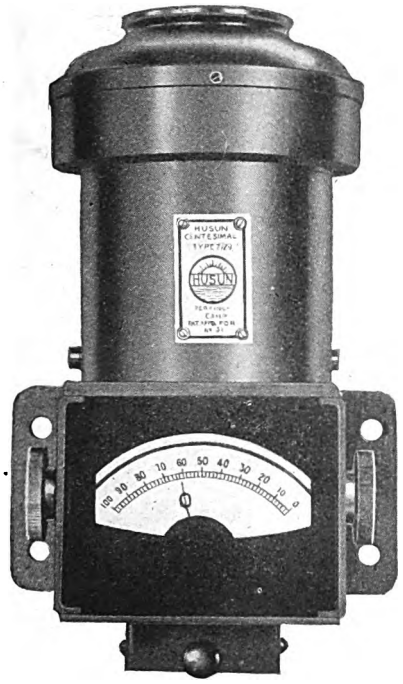
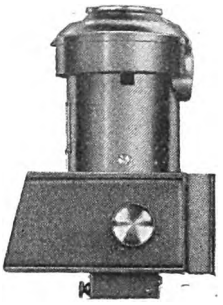
"Husun" Aperiodic Compass



This neat instrument is one of an entirely new range of Vertical Reading Aircraft Compasses.



Front view. *Side view.*

Type Av. 737 (7/29)

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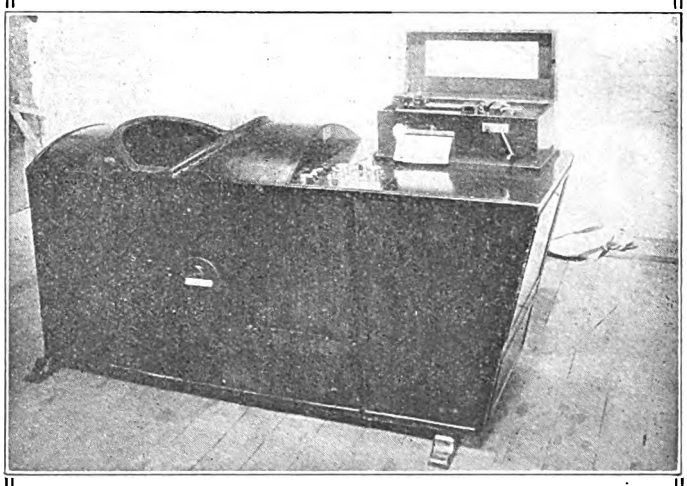

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Extract from "The Aeroplane" report on the King's Cup Race held on 5th July, 1930: . . . . . Mrs. Butler whose companion was Miss Sale-Barker, who was discovered by, and has since vindicated, the Reid Aptitude Indicator,—between them they put up a very fine performance, and flew into fourth place.

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THE CHALLENGE DE TOURISME INTERNATIONAL.—II.

THE FIRST MAN HOME.—Mr. Broad arriving at Tempelhof with Mr. Weedon on his wing-tip.

THE SECOND DAY AT THE HESTON CONTROL.

The second day of the *Challenge de Tourisme,* so far as England was concerned, opened rather raw and cold with the same strong west wind. Nearly half the total entry list had yet to come, and in the Airwork sheds there were a few carry-overs from the night before.

Mr. John Carberry had decided to go on and chance his rather inadequate tank capacity. He got away betimes. So did Mr. Broad with the crack in his gravity tank repaired. Herr Neininger was another prompt starter in the beautiful but rather frightening Darmstadter.

The first arrival was Herr Kruger in a B.F.W.23 (Argus). He is a director of *Deutsche Luft Hansa,* and wore a well-worn military cloak with the double-eagle buttons of the Royal and Imperial German Army (*Prosit*). He made a careful wheel landing, later explained by the precarious state of his tail-skid and its attachments. His machine was wheeled into the workshop, where the ever-ready Airwork organisation fell upon it and did some skin grafting with sheet steel.

The same efficient staff had worked all night on M Zwirko's "Blind Mouse" after its brief affray with a petrol lorry. It now possessed most of a new upper longeron and plywood side, besides having had its all-important forward bulkhead stiffened up. All stresses in the rolling plane are taken from the wing to the bulkhead through an incredibly narrow attachment. By morning the wing was about ready to go on, and the Airwork artists were making the repair invisible by application of the original colours and design.

Another B.F.W. (Argus) came in soon after, and one's old Orly acquaintance, Herr Aichele, emerged. He said things were going well with his mount, and he was pleased with the fidelity of the Argus engine, although he mentioned that the type is apt to lack smoothness. Herr von Dungern brought in an Arado, and Herr von Weildau another of the B.F.W.'s, which were getting monotonous by now.

The last arrival had a piece of excessively bad luck, which merely proves once more that aircraft are more trouble, danger and anxiety on the ground than they ever are in the air. A lady spectator (why was she there anyway?) was suddenly barked at by a dog and sat incontinently upon the tail plane. Such stresses were not contemplated by the designer, and the Airwork casualty ward prepared another operating table.

The next appearance on the horizon excited interest by having no legs. It turned out to be a very young member of the Blind Mouse clan, and had a Salmson 40 h.p. radial nine on its nose and wheels attached straight to short stubs, which protruded laterally from the fuselage, and contained the shock-absorbers. The pilot was M. Plonzynski. Examination revealed a miniature edition of the R.W.D.4, with the precarious-looking wing attachment reduced to three fittings instead of four. The rear one is located centrally.

The Arado had hardly got off before another Polish entry appeared, of almost familiar type. The P.L.Z.5 (Gipsy I) is a large and stoutly built biplane, slightly more like an Avian than a Moth, and has a much larger tail-plane than either. M. Orlinski was the pilot.

Amid the stream of departures a Klemm (Genet) and two B.F.W.'s (Siemens) came in with Herren Spengler, Von Koppen and Offermann.

Close behind were two more Polish representatives. One was of the Lesser Blind Mouse (R.W.D.2—Salmson) order, piloted by M. Muslewski The other was a very large monoplane with a strutted low wing and a Genet engine, which looked inadequate, but seemed to manage very well. It was called the P.W.S.51, and has a regular Fokker-type fuselage of steel tube, wire-braced, containing huge cockpits and ample luggage compartments lined with netting. One gets used to the English practice of reducing the size of the fuselage, and thereby the weight and resistance, until the interior comfort is no more than enough but efficiency is

REACHING A HIGH "C."—Herr Roeder in a Junkers Junior (Genet) arriving at the Heston control as indicated by the letter and arrow.—(*"Aeroplane" photograph.*)

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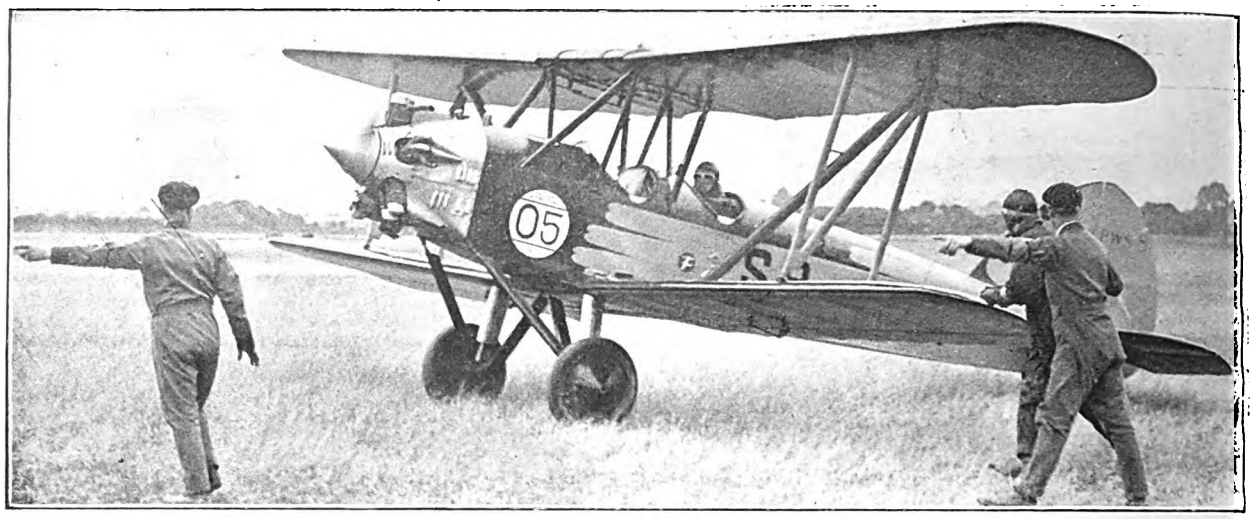

A WIRELESS BIPLANE.—The Polish P.W.S.8 (Walter Vega engine) being shepherded to rest by A.A. Scouts.
—("Aeroplane" photograph.)

high. With the resulting proportions in mind, many of the foreign machines look lumbering and bulky.

Meanwhile M. Zwirko's machine was being revved up for test, and made a successful flight before the complacent members of Airwork Ltd.

Herr King brought in a B.F.W. (Siemens) and then the Polish machine took off for the next stage with one of its younger relatives and the compatriot biplane.

As they disappeared another similar P.S.W. (Gipsy) biplane landed, piloted by M. Gedgowd and, amid a string of departures, a B.F.W.23 with a B.M.W. 60 h.p. five-cylinder radial engine, arrived. This engine shows Pratt-and-Whitney features quite strongly, which is natural enough, as the B.M.W. produced no radial engines until after it had the licence for the American firm's products. Herr Roeder also brought in a Junkers Junior (Genet).

The Poles provided most of the interest on the second day, and now turned up with a P.W.S.50 (Cirrus III) and a P.W.S.8 (Walter Vega 110 h.p.). The former, piloted by M. Babinski, is a middle-wing monoplane of cantilever construction. The passengers sit side-by-side between the wing-spars in a plywood box-fuselage. The dual control system consisted of a central stub column which branched into a large "U," and separate rudder-bars. The undercarriage shock-struts ascended perpendicularly to the wing as in the Fokker Super Universal. The view, though doubtless excellent in the upper hemisphere, could not have extended very far below the horizon owing to the position of the wing.

The P.W.S.8, with M. Dudinski, is a large biplane, which made one wonder how it came within the weight. It looked, superficially, like the Gugnunc, and instead of wire bracing had a single strut to the rear spar.

A three-seater Klemm (Argus) of Swiss registry came next. The pilot was Herr Kolp, who had Fraulein Zoller as passenger besides a mechanic. The quiet efficiency of the latter was noteworthy. He handled the documents with precision, and produced little steel-tube chocks which he placed under the wheels as soon as the engine stopped. After everything was done he cranked the Argus, replaced all his tools, and marched off to the control tent to clock out. The side-crank of all the Argus motors is a distinct improvement on the crude and dangerous procedure of swinging props.

A second B.M.W. engine appeared in the nose of a Klemm, piloted by Herr von Gravenreuth. Then came one of the most interesting machines in the race: an Albatros L.100 (Argus). It is a cabin four-seater with a strut-braced low wing, and seems to handle its load of three passengers and baggage with ease. The general interest in it was, however, tragically damped by an accident which happened on its arrival. Herr Wolff Dietrich von Redern, an amateur passenger, alighted with the documents, and came over the leading edge of the wing as most of the low-wing monoplane crews seem to be doing in the race. He turned his head and paid a terrible price for a moment of carelessness, as he walked right into the turning airscrew, with instantly fatal results.—F. D. B.

THE CONTINENTAL SECTIONS.

After leaving England the competitors began to tail out to an increasing degree. In the lead practically throughout was Mr. Alan Butler, whose performance thrilled all enthusiasts with satisfaction as each morning's paper reported his arrival at some control at the head of the procession. Towards the end of the long course Mr. Hubert Broad seemed practically to be flying alongside Mr. Butler, and arrived just before him at Lausanne and Vienna as he had at St. Inglevert. This is characteristic, as Mr. Broad is of those guileful people who think that first place is important only at the end of a race. The team of Moths (Gipsy II) seem to have aroused wonder and admiration.

Unfortunately Mr. Butler broke his airscrew through taxying unwarned into soft ground at Posen, and a new screw had to be flown from Berlin.

A performance that can only be proven better or worse than that of the redoubtable De Havilland pair by mathematics was Mr. S. A. Thorn's. He flew his Avian (Hermes) well in the forefront so consistently that he definitely became one of the Three Musketeers of England.

These three pilots carry the palm for speed, course-keeping and all-weather skill, but the triumphant reliability of their progress is due very largely to their front-cockpit companions: Messrs. Amos, Weedon and Ford, respectively.

Mr. Andrews in his Spartan (Hermes) kept pace very creditably, but lost some time between Saragossa and Madrid, which he made up in time to arrive ninth in Berlin. As he spent a night away from a control his time will probably suffer badly in the average, however. Such absence is counted as flying time.

Mr. John Carberry lost little time after he had once decided to remain in the race. He held a place in the first few as far as Lausanne, after which his position was not noted in the reports, but as the average times between controls are the important thing and not relative positions, Mr. Carberry may prove formidable when the trials begin.

The glow of satisfaction which has been produced in England by the consistent position of the three leaders is largely sentimental, but is logical to this extent — that

REFUELLING.—M. Lewoniewski at Heston being equipped with a banana, after sandwiches and coffee.
—("Aeroplane" photograph.)

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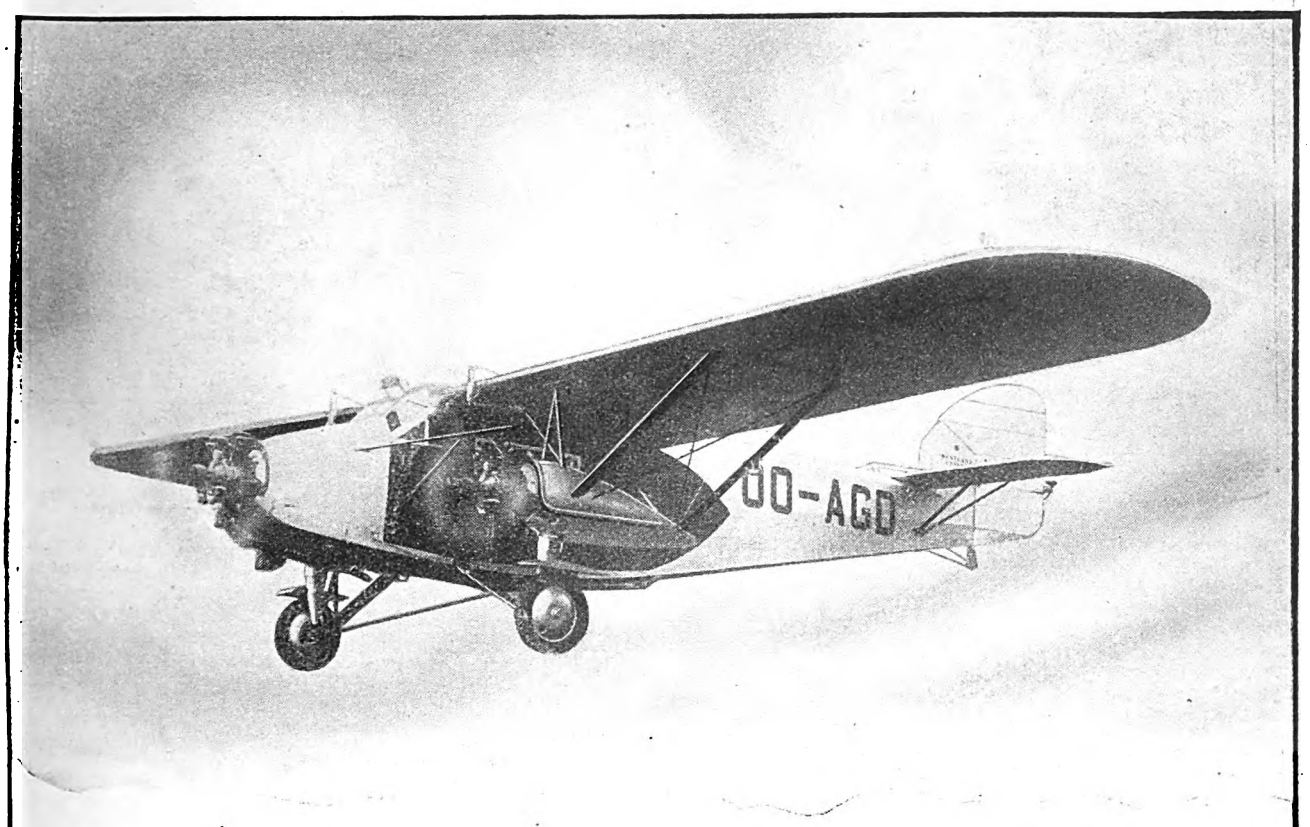

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A POLISH LIGHT AEROPLANE.—A Polish P.Z.L.5 (Gipsy engine) arriving at Heston. The mechanic is de-planing while the machine is in motion. —(*"Aeroplane" photograph.*)

their average times cannot be but good, even though others less in the limelight may possibly have done as well.

Lady Bailey and Miss Spooner—and Mrs. Butler, who was flying with the latter — naturally fell behind the faster machines, but the regularity of their progress, through the awful weather prevailing, was remarkably good. The excellence of British aircraft, and the air-faring quality of our islanders could hardly have a better testimonial over the length and breadth of Europe. They got to Posen on July 27.

The weather at all stages has been bad, and in some regions extraordinarily so. Between Breslau and Posen the leaders encountered clouds almost down to the tree tops of the almost unbroken forest, although the report had led them to expect about a 600 ft. ceiling. On the Madrid-Saragossa leg they met heavy rain and thunder.

Of the German competitors Herr Poss in a Klemm (Argus) came in after Mr. Thorn at Berlin, and following him were Herr Morzik (last year's winner) in a B.F.W. 23 (Argus), M. Finat in a Caudron (Renault) and Herr Pasewaldt in an Arado (Argus). Just before Mr. Andrews came the Archduke Antoine of Habsburg-Bourbon in a Moth (Gipsy I), which is another credit to British workmanship.

The placing, even in the light of the first machines home, has all the elements of glorious uncertainty. Any one of the first dozen or so will probably qualify for quite high marks on speed, and their performance during the tests of quality next week may easily change the placing quite drastically.

Herr Pasewaldt looks like a very dangerous contender, as his time is obviously good, and he has a side-by-side cabin of exceptionally roomy kind, wheel brakes, and a few other things which will net him a good store of points. The British open tandem two-seaters will have to take-off, climb and land with exceptional merit to make good the difference.

Nine machines of the sixty starters are definitely out of the contest for various reasons. One of these is the Albatros L.100 by the airscrew of which Herr von Redern met his death at Heston. Another is the B.F.W. of Herr Offerman, who was killed with his passenger, Herr Jerzembski, when the machine fouled a wireless aerial at Bron Aerodrome, near Lyon. Herr Neininger, who was flying the speedy little Damstadter (Genet Major) descended in the Gulf of Lions on Saturday and was rescued with his companion by a French steamer.

Herr Offermann's death was a great blow. He was one of the best known and most popular competitors, and a famous pilot. [Too late for publication this week, one of his friends has sent a personal memoir, which will appear next week.—ED.]

On Monday, July 28, the remainder of the British competitors came to Berlin: Lady Bailey, Miss Spooner and Mr. Carberry. All the British entrants arrived in the first sixteen, which is a really remarkable show.

THE SCORES.

So far only the marks for speed and reliability can be estimated for the machines which have finished the tour. The trials of quality will not begin until the end of this week, and much will depend on them. The scoring to date is, however, intensely interesting.

Mr. Butler's broken airscrew may well cost him his place in the contest. There is no indication as yet whether his protest has any chance. Subsequent arrivals at Posen, where he taxied into a boggy spot with such unfortunate results, were warned off the dangerous place, and Mr. Butler has protested because he had no such advantage.

Mr. Broad, who finished some three seconds before Mr. Butler, gets full marks for speed and regularity, which is 270. If Mr. Butler's disqualification stands Mr. Broad therefore stands alone at the head of the list at present.

Next to him is Herr Poss, in a Klemm (Argus), with 264, and this puts a dangerous competitor in the running. The Klemm with Argus engine is fast and handy, has some pretence to a cabin, and has wheel brakes.

Herr Morzik, with a B.F.W.23 (Argus), and Mr. Carberry with his Monocoupe (Warner Scarab), both have 263 points, and both have points of quality.

Mr. Thorn, with his Avian (Hermes), is credited with 250, and nothing is known at present of how he dropped so many points after flying so fast and consistently.

There are no marks published, at the time of going to press, for Herr Pasewaldt's Arado (Argus) or M. Finat's Caudron (Renault).—F. D. B.

A FRIEND IN NEED.

While writing of the Rundflug one forgot unfortunately to mention the excellent work done by Herr Gerhard Sedlmayr and his Service Station on the Staaken Aerodrome. Herr Sedlmayr, who was a particularly brilliant War-pilot and is, like so many of the German War-pilots, a thorough good sportsman, is the agent in Germany for the Irving Air Chute Co., Henry Hughes and Son, the Pioneer Instrument Co., and a variety of French and German accessories.

Quite a number of competitors received the help of the good Herr Sedlmayr before starting on the Rundflug, for, happily for us, the custom of building competing aeroplanes on the starting line is not peculiar to England. As a matter of fact, the English machines were rather more ready to start than any of the others. But even so, the British contingent was indebted to Herr Sedlmayr for help, which is hereby gladly acknowledged.

THE GREAT BRAKE QUESTION.

When the total number of marks come to be calculated we shall find that the British machines all lose marks which they might have had if they had been fitted with wheel brakes, and naturally people will want to know how it is that British designers have been so remiss or obstinate or out-of-date as not to fit wheel brakes. Therefore on behalf of the designers of all the British machines one may point out that the people who are to blame for the loss of these marks are the Technical Experts at the Air Ministry. When the question of fitting wheel brakes arose a few years ago these self-constituted experts proceeded to work out a whole lot of calculations to discover how the undercarriages of aeroplanes would have to be strengthened up to stand the application of brakes, apparently assuming in the first place that brakes are 100% efficient and that tyres do not skid on either wet or dry grass if the wheels are locked by the brakes. The result was that they produced some sort of regulations under which the unfortunate designer has to start with the assumption that his wheel axles have to stand a stress of four times the weight of the aeroplane,—applied backwards. Just what that means the ordinary lay mind cannot be expected to understand, but one is told by people who are learned in mathematics that to comply with the regulations the axles of standard aeroplanes would have to be made of what an Irishman might call solid tubing.

Naturally the same result could be achieved by using good thick tubing of much larger diameter, but the trouble there would be that there are no hubs of reasonable weight to fit axles of such diameter. In these big diameters the hubs are all made to take things like Argosies and Handley Pages. Anyhow, the result is that thanks to Air Ministry regulations all the British machines had to go into the competition without brakes and lose marks accordingly. Precisely what brakes have to do with Airworthiness is not explained. Aeroplanes are not bound to have Groundworthiness Certificates and one would imagine that brakes came into that category.—C. G. G.

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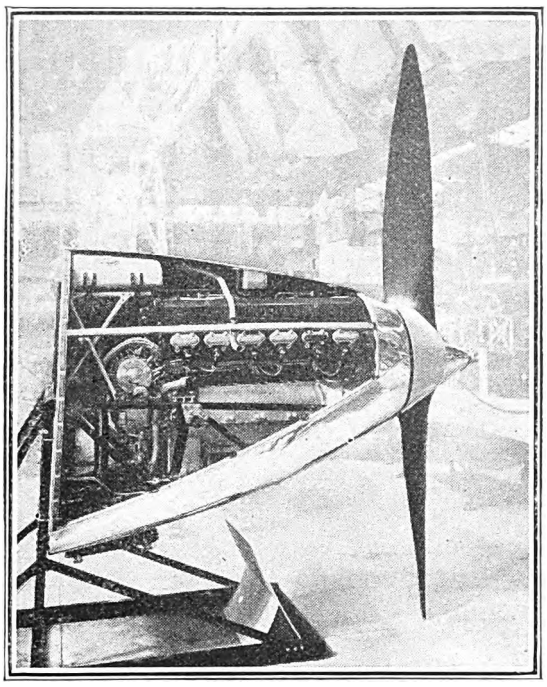

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THE LIGHT AEROPLANE
AND THE FLYING CLUBS.

THE MOUSEHOLD BRIGADE FLYING CLUB.

The Norfolk and Norwich Aero Club had a good day on July 26 for their flying meeting, up on the famous Mousehold Aerodrome, although visiting pilots reported nasty weather right across the Midlands. The show had all the elements of great success except one, and the lack of variety in the programme was all that made it fall short of excellence.

Here be it stated definitely that this lack of balance in Saturday's events was obviously not the fault of the management, but it should teach them not to be too trustful. Four consecutive features were cancelled immediately before the show, three of them on Saturday morning, so the public missed the pleasure of watching the evolutions of such highly interesting types as the Blackburn Lincock, the Autogiro, the Pterodactyl and the Comper Swift.

The failure of these machines to appear was unfortunate for at least three reasons. Firstly, the contributing public were disappointed; secondly, the hard-working Club committee were made to look as if they had padded the programme; and thirdly, the proprietors of these machines had a bad advertisement in proportion to the number of prospective or putative buyers in the crowd. The last is a consideration which only affects one or two of the defaulters immediately, but the effect is there, and the firms who produced those machines (or failed to produce them on the date) have given an impression of unreliability to flying at large and their products in particular.

Flying began in the middle of the morning, but the first important event was the Rally. About 12.30 hours the horizon became speckled with aircraft approaching with a "musical-chairs" look about them. Some four or five had the correct Norwich time, and came in over the line in quick succession.

Flt. Lt. A. F. Scroggs, in the D.H.53, was adjudged the of winner of the *Eastern Daily Press* silver cup, and second and third prizes were taken by Mrs. C. M. Young, in her Moth, G—ABAC, and Mr. D. S. Green in an Avian (Genet Major), G—AABS.

Just previously Air Vice-Marshal Sir Sefton Brancker, Director of Civil Aviation, had arrived in a Moth and at 14.30 hours he was asked by Mr. Harper Smith, Lord Mayor of Norwich, to open the Display. In making this request the Lord Mayor took the opportunity to remark that Mousehold was not a municipal aerodrome because that eminently suitable site was merely leased from the War Office, and he hoped Sir Sefton would use his influence to have it released for proper development.

Sir Sefton congratulated the Norfolk and Norwich Aero Club, one of the oldest in England, on its fine record and present activity. He drew an analogy between airmanship and that seamanship on which Britain, in its greatest days, had built its fortunes.

The parade and fly past showed a good variety of machines: D.H.53 (Bristol Cherub), Boulton and Paul Phoenix (Salmson 40 h.p.), Westland Widgeon (Cirrus III), Avian Monoplane (Hermes), Bluebird (Gipsy), Moth (Hermes), Avian (Cirrus II), Desoutter (Hermes), Puss Moth (Gipsy III), Handley Page W 10 (Two Rolls Royce Eagles).

A display of formation aerobatics by No. 19 (Fighter) Squadron in Siskins (Jaguar) was a thrilling event in more senses than one. A slight miscalculation at the top of a formation loop brought the rear machines close enough to cause a heart flutter, but the pilots carried it off very convincingly in a sort of Prince of Wales's feathers.

Mr. Bradbury took up a Norfolk Club Moth and crazy-flew with great effect, after which Flt. Lt. R. L. R. Atcherley in the Avian monoplane gave an excellent aerobatic display. This machine appears to handle well in difficult evolutions, but one expects precision and finish from anything that this pilot flies.

Because of the high wind the balloon-bursting did not go with much of a "pop." Messrs. Rose and Bentley each caught one balloon, but the others were well away in the direction of York in a few moments.

A second display of formation aerobatics by No. 19 Squadron was really good and showed excellent finish, and the individual show by Flg. Off. N. A. Lindley was outstanding.

In the absence of so many of the advertised features Flt. Lt. R. L. R. Atcherley again stepped into the breach and showed exactly what a Moth (Cirrus II) will do, albeit what it ought not to. His parachutish descents in QX, unslotted, were rather frightening, and the low crazy-flying was in quite his own style.

A race between a Moth (Cirrus II) piloted by Flg. Off. D. F. W. Atcherley, a Bluebird (Gipsy I), with Mr. Bradbury up, and an Avian (Cirrus II) flown by Mr. Brett finished with the machines in that order.

Flg. Off. W. E. P. Johnson then took up the D.H. Demonstration Moth, G—AALT, and gave the finest display of inverted flying one has ever seen. He did a large range of normal aerobatics and duplicated each manœuvre from the inverted position. His inverted loop, which he did by making an inverted dive and looping upward, was a revelation in the strength of standard Moth landing wires.

Aerobatics, good as they were, became slightly monotonous as time went on, and it was an inspiration to get Sq. Ldr. C. A. Rea into the air with a Sidestrand (two Jupiter VIII's). This machine did not actually do aerobatics in the usual sense of the term, but it showed quite clearly that it could without any trouble if the Air Ministry permitted such elephantine frivolities. It took off in a few yards and climbed at an incredible angle with the rudder and its servo-gear waving gently like the tail of a somnolent goldfish.

A competition between the Sidestrand, the Gloster Survey and the Vickers Vellore would be a really epic battle of giants, because each one seems to do something more in-

THE NEW TYPE PARADE.—Designed, built and piloted by Mr. Kirkby, ground engineer of the Norfolk and Norwich Aero Club, this novel vehicle, with all modern conveniences, put on a parade all by itself at the recent meeting on Mousehold.

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credible at each appearance. The Sidestrand at Norwich played like a young Moth, flashing across the field with really exciting speed and noise, and then floating over hanging on its slots, with turns in great variety between.

The comedy turn of the day had been produced at very great trouble by Mr. Kirkby, the industrious engineer of the Club. His idea of the perfect aeroplane, "carried out" by himself, may have points but seems to lack performance. The æsthetic value of window boxes and pendant jardinieres is great, but ferns are poorly streamlined, and the handles on the bar in the passenger's cockpit were noticeably of rounded section. Furthermore there is no need to carry a spare airscrew of eight blades. The ancient R.A.F. 90 h.p. engine did its decrepit best and "The Flying Dustman" cantered amiably about Mousehold without, however, becoming really air-borne.

Among the fifty or so aircraft present were seven Service Siskins, a Fairey III F, and a Bristol Fighter. Civil aircraft were present with the following pilots:

Moths (Cirrus II), Mr. Parker and two Norfolk Club machines. Moths (Gipsy I), Mrs. Young, Lt.-Cdr. Gubbins, Sir Sefton Brancker, and Messrs. Fairburn, Johnson, Tyzack, Linnell, Marshall, McClure and Diamant.

Avians (Cirrus II), Mr. Brett. Avian (Genet-Major), Mr. Green. Avian Monoplane (Hermes), Flt. Lt. Atcherley.

D.H.53 (Bristol Cherub), Mr. Scroggs.

Bluebirds (Gipsy I), Messrs. Bradbury, Ripley and Windsor. Bluebird (Genet), Mr. Prentice.

Boulton and Paul Phœnix (Salmson), Capt. Dawson Paul.

Spartan (Cirrus III), Mr. Andrews.

Widgeon (Cirrus III), Mr. Hanstock.

Puss-Moths (Gipsy III), Messrs. Clarkson and David.

Desoutter (Hermes), Mr. Morton.

There was a dance in "Barnard's Hangar" on Saturday night. Those who know Norwich and its aviators need no detailed description of it. It is enough to say that the flying on Sunday was uniformly good.

At the garden party on Sunday afternoon Mr. Johnson won the message-dropping contest, with Mr. Bradbury second and Flt. Lt. T. Rose third.

The Autogiro, which arrived in time for the second day's events, distinguished itself at the hands of Flt. Lt. A. H. C. A. Rawson by getting third prize in the balloon bursting. Mr. Dick won first and Mr. Salisbury second, on Moths.

Mr. Johnson won the aerobatics prize from Mr. Fairbairn, who was second. The trophy was the Mobiloil Cup, presented by the Vacuum Oil Co. Ltd.

Flt. Lt. Rose won the take-off, landing and folding competition, and the efficient Mr. Johnson followed up.

THE LONDON AEROPLANE CLUB.

The London Aeroplane Club will entertain Miss Amy Johnson, C.B.E., at a Dinner Dance at the Park Lane Hotel, Piccadilly, on Thursday, Aug. 7, at 8.30 p.m. Tickets £1 1s.

The number is limited to 200 and applications will be dealt with in order of receipt. Members are requested to apply to the Secretary, at 3, Clifford Street, London, W.1.

AN ATLANTIC ATTEMPT.

On July 24 Herren Wolf Hirth and Oskar Weller left Berlin in a Klemm monoplane (40 h.p. Salmson engine) in an attempt to fly from Germany to America by way of Cologne, London, the Orkneys, Iceland, Greenland and Labrador.

The machine carries enough fuel for 22 hours at a maximum speed of 80 m.p.h., and Herr Hirth has, in previous tests, remained in the air for 25 hours and has covered a distance of 1,400 miles. The longest stretch the aeroplane will have to cover non-stop on its flight will be 1,000 miles.

The machine left Berlin shrouded in secrecy and it was not until after it had left that its destination became known generally. It arrived at Croydon on July 25.

[Herr Wolf Hirth is a brother of our good friend of pre-war days, Herr Helmuth Hirth, the contemporary and sporting rival of Gustav Hamel and Roland Garros. Helmuth Hirth is a rich manufacturer in the Rheinland.—C. G. G.]

A SLIGHT MISCONCEPTION.

On Sunday, July 27, according to a National Flying Services' bulletin, Hanworth saw the start of a German attempt to fly across the North Atlantic to America, and of a Japanese attempt to fly to Tokio.

"Where Macdonald sits is the head of the table," but why these estimable gentlemen of diverse nationality, creed and colour should fly all the way from their native lands to start a flight from Hanworth is not so clear. To the lay observer the two aeroplanes appear rather to have called there *en route*.

The Japanese adventurer is Mr. Zensaku Azuma, who has flown across the United States from his home in Pasadena, California, in a Travelair biplane (Wright Whirlwind). His machine was dismantled and shipped across the Atlantic, reassembled at Hanworth (without drawings or instructions) and left on Sunday for Croydon. Mr. Azuma intends to make his journey by easy stages.

The sporting, if foolish, effort of the German aviators is related in its own paragraphs.

ITALY-JAPAN.

On July 13 Signor Francis Lombardi accompanied by Signor Gino Cappannani as mechanic, left Vertelli, N. Italy, in a Fiat A.S.1 two-seat light monoplane (85 h.p. Fiat A.50 engine) to fly to Japan.

On July 22 he landed at the Yokosuka naval aerodrome about 35 miles south of Tokyo on account of fog. When he would continue to the Tachikawa aerodrome, Tokyo, was not known. But Yokosuka is a naval base surrounded by prohibitions particularly to foreign aviators.

The route followed was mainly through Russia in both Europe and Asia, and was by way of Vienna, Warsaw, Moscow, Kazan, Ekaterinburg, Omsk, Irkutsk, Chita, Harbin, Tai-ku and across the Straits of Tsushima to Osaka and Yokosuka.

The total distance is roughly 11,600 kms. (approximately 7,200 miles) and this was covered in 14 days or an average of over 500 miles per day.

ROYAL PATRONAGE.—The Puss-Moth (Gipsy III) built for H.R.H. the Prince of Wales. This apparently is the first Puss-Moth with slots.—(*"Aeroplane" photograph.*)

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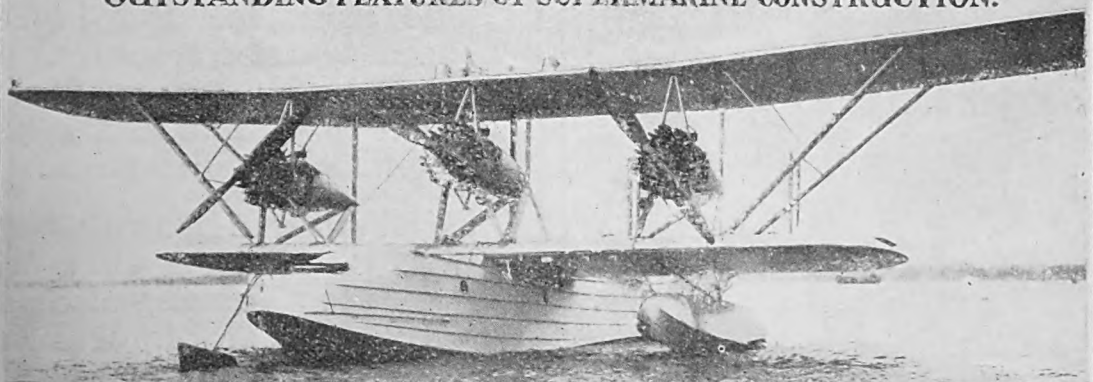

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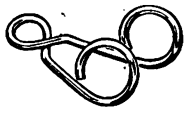

FOR PERFORMANCE—NOT PROMISE

A. 118

HANWORTH AIR PAGEANT

The first and second prizes in the Hanworth—Reading—Farnboro—Hanworth Handicap Race were secured by

1st. Capt. E. W. Percival flying a Hendy 302 (Cirrus-Hermes engine)

2nd. Mr. C. S. Napier flying a Westland Widgeon (Gipsy 1 engine)

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The prize for the highest speed was also secured by Capt. E. W. Percival at a speed of 128 m.p.h. (Subject to Official Confirmation.)

Miss Winifred Brown, winner of **The King's Cup** and **Siddeley Trophy** also used "BP" Special Motor Spirit.

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COMMERCIAL AERONAUTICS.

AIR LINE OPERATION.

The following letter is enlightening:—

Sir,—Immediately after the Meopham accident, Lt. Cdr. Glen Kidston wrote to *The Times* and unfortunately for him, that journal published his letter.

In it he said "It cannot be denied that the weather conditions were extremely unfavourable for flying" (at the time of the accident) and that "In the opinion of certain persons qualified to judge the bad weather prevailing was the primary cause of the accident."

That the weather was extremely bad for flying *can* definitely be denied, on the evidence of official weather reports of the time and the place of the accident, and the persons *really* qualified to judge (*i.e.*, the Air Ministry experts in charge of the investigation) had not at the time of Commander Glen Kidston's letter said a word about the cause of the accident.

If other evidence about the weather conditions were needed, it could be supplied by the reports of highly experienced Air Line pilots of British, Dutch, French, Belgian and German Air Traffic Companies who flew to schedule that day, and by the various competitors in the "Round Europe Race" who were flying in light aeroplanes that day. All of them would say that cloud height and visibility were good, although the weather was bumpy.

I do not know whether Commander Glen Kidston suffers from air sickness, if so, there is perhaps some excuse for his considering the weather "extremely unfavourable for flying," but my point is that from any experienced pilot's point of view, it was not bad flying weather at all.

Having, as he supposed, established that the Meopham accident was due to bad weather, Lt.-Cdr. Kidston went on to compare Col. Henderson's accident with the one in which he himself was involved on November 6, when "a German air liner flew into the top of a hill at Caterham in extremely bad flying weather . . . this recent accident being similar in many respects to that of the German Air Liner."

As Col. Henderson was flying at about 800 feet and was not inconvenienced by bad visibility and did not fly into the top of a hill, there is difficulty in finding any similarity between the two accidents.

Lt. Cdr. Kidston does not seem to have collected a great deal of evidence regarding the Meopham crash, any more than he did in connection with the Caterham accident, and it is doubtful whether he realises even to-day that the Caterham crash was by way of being an exception, and that on that date other Air Liners were normally flying *above* the clouds in perfect visibility at about 1,500 feet.

Lt. Cdr. Kidston then went on in his letter to refer to the rider of the Coroner's Jury at the Caterham accident inquest, when he did not deny that he was an "expert pilot" and gave voice as such to the opinion that "a certain control" should be exercised over pilots flying in bad weather. The Coroner who naturally failed to distinguish between that very elastic term "an expert pilot" and the more definite term "an experienced air-line pilot" meekly followed Lt. Cdr. Kidston's very pointed lead and added his rider accordingly.

Incidentally there is a curious coincidence in that the Hon. Frederick Guest writing to *The Times* on the same day as Lt. Cdr. Kidston and having his letter published immediately above the other, should have said "I would point out that in the case of fatal accident the Coroner who conducts the inquiry is not, except by chance, an expert in aviation and cannot, in his summing up express an opinion upon the causes of the accident in sufficient detail or with sufficient accuracy."

This is all the more so if suggestions are made to the Coroner by witnesses who are not experts in aviation either. Lt. Cdr. Kidston very rightly asked in his letter that a full and public enquiry should be held into this and every accident to commercial aircraft in which loss of life is involved, but he did so after filling the minds of his readers with very definite suggestions that this and most other accidents were caused by bad weather flying, which was in need of "certain control,"—which I maintain is a very unfair thing to do.

What Lt. Cdr. Kidston does not appear to realise is that firms with very many years' experience of air-line operating have come to the conclusion that the right man to make decisions in, and take responsibility for, bad weather flying is the pilot who is going to fly the machine. The air-line pilot of experience knows every trick of the weather on routes with which he is familiar, better than any ground official ever can, and he is the master of his ship, as worthy of the trust of his firm and the confidence of his passengers, as any ship's captain who ever sailed the seas. [Here one feels compelled to remark that, though this is true in theory, one disagrees so completely from many employers of pilots in their estimation of the ability of the pilots whom they employ that one is not prepared to endorse the opinion that all pilots of all so-called "air lines" are worthy of the confidence of passengers.—C. G. G.]

He has the responsibility for his passengers' lives and incidentally for his own, and he has in his keeping that most cherished possession of any big Air Traffic Comapny its reputation for safety. Any suggestion, such as Lt. Cdr. Kidston made at the time of the Caterham accident, that the pilot is given too much responsibility, is nonsense because the air-line pilot, like every other responsible official, takes his responsibility not only in the ordinary course of events as a highly skilled individual, but also as his undeniable right.

To assert that pilots are pressed or obliged to fly in weather they do not think fit for flying is also complete nonsense, first of all because they would not do it, and secondly because it would be madness for any manager to insist upon a pilot flying in weather which might involve his firm in a serious accident.

Commercial Aviation only desires to be given a fair show and if Lt. Cdr. Kidston is sufficiently interested in this question to give public expression to his theories I think it would be much fairer if he would study more than one side of the question.

I have been intimately concerned with Air Line operation for over ten years, and I know air-line pilots of every nationality intimately. A more highly skilled, reliable class of men, or one which takes its responsibility more seriously does not exist, and if Lt. Cdr. Kidston really wishes to learn something about the whole question, why does he not come to Croydon and hear the point of view of air line pilots and air line people in general?

(Signed) H. Spry Leverton.
(Aerodrome Manager, K.L.M.)

[A point which should be made clear also is that there are air lines and air lines. One concern which called itself an air line engaged a pilot (its only pilot) who had been dismissed from a flying club for having been convicted locally of having been drunk in charge of a car. The man was notoriously addicted to drink, and ultimately he disappeared along with a sum of money which was alleged to belong to the firm which styled itself an air-line though it never ran a regular route to a regular schedule. One suggests that the Air Ministry might well take notice, and evolve some line of action in relation to such affairs.—C. G. G.]

AIR TRANSPORT IN THE HIGHLANDS.

Commercial aviation, on a small scale to be sure but nevertheless the real article, has been tried in the Scottish Highlands by Messrs. Henry Tegner and James Hanstock, of the Anglo-American Oil Co., Ltd. As Mr. Tegner is in charge of a largeish area in North Britain—on both sides of the Border—he bethought him of aviation as a reducer of distances. He was fortunate in being able to borrow *Miss Ethyl*, the Company's Widgeon (Gipsy I), which Mr. Hanstock flew up in five and a quarter hours' flying time from London to Aberdeen.

The difficulty about landing fields was considerable in the North, but the expedition based itself on a field kindly lent by a farmer six miles north of the city. On Monday, July 21, the machine left Aberdeen at 10.30 hours for Edinburgh, where it arrived an hour later, and Mr. Tegner spent the day on business in the capital city of Scotland. At 17.00 hours they left for Newcastle, and landed at Cramlington in 55 minutes.

An intended trip to Dumfries on Tuesday night was called off on account of appalling weather, and Mr. Tegner took the train to Carlisle rather despondent about the dependence of business aviation on little matters like weather. He motored to Dumfries, where Mr. Hanstock telephoned an inquiry about the conditions. As they were not bad on the West Coast Mr. Hanstock set out in very dirty weather indeed from Cramlington, against the advice of local savants, on Wednesday morning.

He landed in a field which had been hastily selected, and after a busy day Mr. Tegner went aboard again and was flown to Renfrew in less than the hour.

Mr. Tegner, in spite of one discouraging day, reflects that he was able to visit all his mainland branches and offices in a period of four days, which would have been impossible by train in the most ideal of weather.

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ENTERPRISE IN THE FAR EAST.

A correspondent of The Aeroplane, Mr. A. J. Moynihan, of the *Australasian Air Travel News,* writes as follows:

"H. A. Gudde, representing the Royal Netherlands Air Mail Company (K.N.I.L.M.) is at present in Sydney completing arrangements for the opening of the Sydney—Sourabaya air service. They are not asking for a subsidy. The service will leave Sydney and Sourabaya at weekly intervals, stops being made at Darwin and Brisbane *en route.* Cost about £50 per head, and time taken about four days. When linked up with the Dutch East India service, this will bring Australia within sixteen days of London, and the total fare will not exceed £200."

Here is enterprise with a vengeance! Enterprise, moreover, by people who know what they are about in the regions mentioned. The K.N.I.L.M. service to Sourabaya has never looked back, either financially or practically, since its inception. The grimly humorous situation, whereby one may travel from the heart of the British Empire to its farthest outposts in a Dutch aeroplane on a regular schedule, needs no comment.

A CROSS-CHANNEL SERVICE INTERRUPTION.

An air liner belonging to Air Union proceeding to London from Paris, made a forced landing near Ham Street, on Romney Marsh, through engine trouble, and the undercarriage was damaged when the machine ran into a ditch. The twelve passengers were transported to London by motor-coach after a delay of two hours.—Several London newspapers refrained from issuing special editions or even posters to celebrate this latest "Air Line Drama."

PILOTS WANTED.

The Employment Bureau recently opened by the Guild of Air Pilots and Air Navigators of the British Empire has been such a success from the very start that actually the number of inquiries received for pilots has been greater than the number of pilots suitable to supply the vacancies.

Professional aviators who do not happen at the moment to be members of the Guild are hereby advised that the Employment Bureau is open to them as well as to members. Communications should be sent to The Secretary, The Employment Bureau, G.A.P.A.N., 61, Cheapside, London, E.C.2.

FLOAT-MOTHS AND FIRE-FIGHTING.

The Moth seaplanes of the Ontario Provincial Air Service did yeoman service during the forest fires which were particularly bad in the province during May and June of this year. Fourteen such aircraft are owned by the Forestry Patrol Service. But the intensity of the fires taxed the equipment beyond all expectations, and only the reliability of the Moths enabled the staff to cope with the work.

The figures of flying time during the month of May and the first half of June are amazing. In slightly more than six weeks the 14 Moths flew 2,008 hours. Particularly outstanding were the records for Mr. McCoy in *Yellowbird* with 192; Mr. J. G. Horner in *Zeno,* who did 190 hours in that time; Mr. Billington in *Wren,* who flew 176; and Mr. Overbury in *Xebec* with 169 hours. Others exceeded 100 hours.

The fact that these pilots could fly so continuously day after day is a tribute to the handling qualities of the machine as well as its dependability.

DESOUTTERS FOR ABROAD.

A Belgian air taxi company has ordered four Desoutter cabin monoplanes for work in that country, and a Canadian company is also reported to have bought some.

The Desoutter is now available with Gipsy II, Gipsy III, Hermes or inverted Hermes engines, according to preference.

MORE BLUE PILLAR BOXES.

The blue pillar boxes recently placed at strategic points in London exclusively for air mail have proven popular. So much so that the Postmaster-General proposes to extend the service to the provinces, and these conveniences will be put in at Manchester, Liverpool and Birmingham, which have already air-mail services, as a first step. Newcastle has now been placed on the air mail service list.

THE FLEET STREET MIND.

Among the grim humours of the recent Junkers tragedy at Meopham was the circulation by a news-picture agency of a photograph of the funeral of one of the victims. With true journalistic taste the photograph bore the inscription, —"Photo shows:—The sea of top hats presented by Society mourners at the service."

MANY INVENTIONS.

Mr. Olley, of Imperial Airways Ltd., has been kept extremely busy recently flying all over Europe on special jobs, and one of his most interesting flights was to take Sir Charles Hyde on an extensive tour of the Balkans. As nine hours flying a day was frequently done a W10 was fitted up with armchairs, bed and writing desk, so that Sir Charles could eat, sleep and work during the flying. The object of the flight was to visit certain archæological excavations said to be connected with one of the oldest civilisations in the world, in which Sir Charles Hyde is interested.

Amongst other interesting finds was, according to rumour, the mummy of an early example of a gentleman who *would* write to the papers on subjects of which he had little or no knowledge. From the curious bituminous substance with which the mummy was plastered, and from certain feathers adhering to the same, believed to be those of that pestilent bird the Lesser Cross-nibbed Quill-driver, it is supposed that the primitive tribe concerned rose up and tarred and feathered the critic, having previously caused him to eat his own words, which, as they were not only narcotic in themselves but also written according to the custom of those days upon large rectangular bricks in cuneiform characters, not unnaturally closed the career of the early critic.

Talking of bricks, we ourselves dropped one of a size and shape suitable for building a pyramid last week, for which we express profound regret. We referred, in all good faith, to Mr. Robinson as the designer of the Robinson Redwing, whereas he is actually the highly efficient business end of the Robinson Aircraft Co., and Mr. Kenworthy, late of the Royal Aircraft Establishment, Farnborough, who has designed a number of very successful machines (notably the Austen Whippet, which was twelve years too early), actually designed the Redwing.

Talking some more about bricks, we understand that those of which the aerodrome are built are being waterproofed with a patent dope worth a guinea a thimbleful. A scientist of the Air Ministry suddenly discovered that one of these bricks, or more correctly concrete blocks, if plunged into a bucket of water immediately drank the lot and when plunged into a bucket of beer not only absorbed it all but made a hollow booming noise interpreted to mean "What about the other half?" Is not Nature wonderful?

Miss Amy Johnson is to write for *The Daily Mail* we understand on aviation matters. This should start an entirely new era in journalism, for Miss Johnson will obviously know *something* about her subject and we congratulate the newpaper concerned on this epoch-making change of policy.

Last week a passenger rang up one of the air line firms from somewhere the other side of London a few minutes before the plane was due to leave and demanded that it should be held up for him until he arrived. When this request was refused he asserted that it should be done on the grounds of common humanity, and he was then informed that the other passengers, some twelve or fourteen, with long distance connections to make in a number of cases, were human too, and that therefore common humanity seemed to indicate a punctual departure. He was very annoyed and needless to say did not catch the machine.

On Monday Mr. Evert van Dyk and his wife were at Croydon and left for Holland by the K.L.M. 13.00 London—Amsterdam—Berlin service. Mr. van Dyk is convinced that Transatlantic flights from this side will usually fail if a pilot has no assistance, because of the enormous strain eleven or twelve hours' fog flying put a pilot to. He thinks two experienced pilots, with a navigator and above all a wireless expert, on board, can fly the Atlantic with comparative safety, but that the lone airman probably succumbs to weariness in most cases.

Rumours that a return flight from America was to be made actually emanated from a simple business proposal. The American Fokker people rang up K.L.M. in Holland and pointed out that they had one of the new F.32 four-engined Fokkers for 32 passengers handy and if K.L.M. wanted one for European air-line work an excellent opportunity for delivery occurred, as a K.L.M. pilot happened to be in the States. K.L.M. had not urgent need of a machine of this type so van Dyk came back by boat. Maybe however he will slip across and fly the first 32-seater required by K.L.M. over from the States one of these days. As van Dyk says—"Why not? with a really good machine the crossing from America to Europe is comparatively simple."—SPRY.

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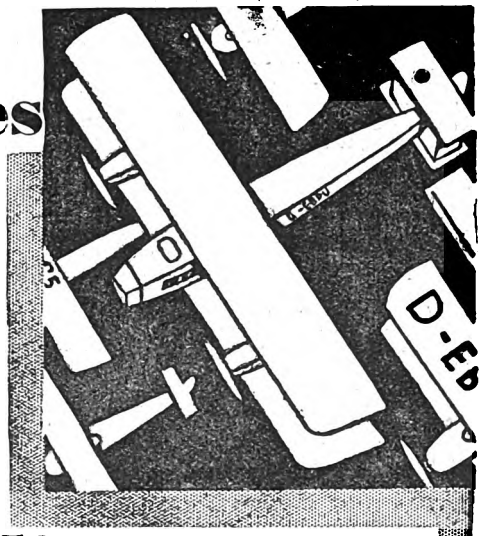

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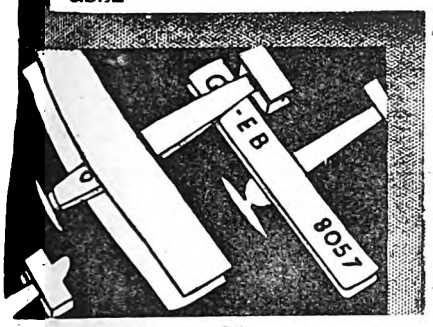

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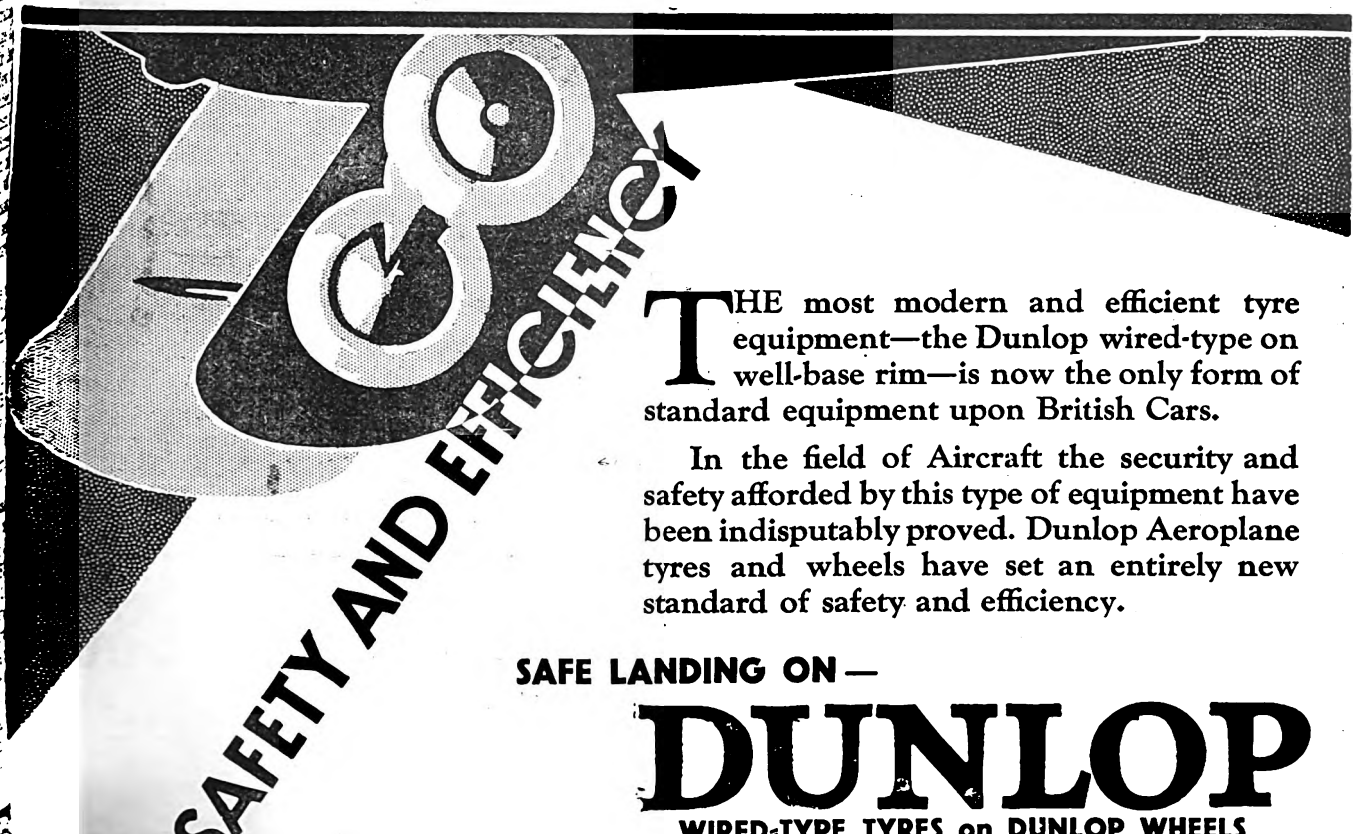

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C.F.H. 182

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PRATT'S PRACTICAL PATRIOTISM.

Fifty-foot letters and direction arrows legible at a height of 2,000 to 3,000 feet are being painted on the roofs of tanks and depots owned by the Anglo-American Oil Co., proprietors of Pratt's Spirit, so that they will act as direction signs for aviators in all parts of the country.

Among the company's depots which already bear these direction signs are Salisbury, Portsmouth, Poole, Newport (Isle of Wight), Lymington, Bournemouth and Andover. The word "Fawley" is being painted on top of a tank 100 feet in diameter at the big refinery on Southampton Water, which supplies the South of England, and the word "Hull" and a direction arrow are to be painted on tanks at the company's depot at Saltend, near Hull.

An official of the firm said recently:—

We plan to set up direction signs at as many as possible of our 600 depots. We are advised, for instance, that signs would be useful also at Bristol and, acting on advice from our local agents all over the country, we hope to do for aviators what the A.A. has already done for the motorist in the matter of guiding him to his destination.

The other day an aeroplane dropped a message on a golf course, asking a player to lie down in the direction of a certain town. This the player did. The incident proved the lack of signposts for airmen and prompted us to provide them.

The name of the place itself or the nearest town which an airman is likely to want will appear in the red, white and blue circle-and-bar device which is a familiar feature of our petrol pumps

Once again credit must be given to an oil-marketing company with enterprise and foresight. The value of such markings will be considerable to all navigators of the air, experienced or otherwise. The few existing markings are restricted to those on actual aerodromes which only indicate that an air traveller has arrived either at his intended destination or otherwise.

The Anglo-American markings and direction arrows will help to ensure that an air traveller will know the correct direction to his intended destination, and they will inspire confidence in those who normally require artificial aid to their undeveloped bump of location.

A list of the marked depots and tanks for the information of present and future cross-country navigators will be duly published from time to time.

TWO USEFUL PRODUCTS.

The problem of how to reduce the noise in aircraft is one that is beginning to attract much interest. Various researches are being made by official bodies and individual manufacturers are making tests of their own with a variety of materials. One of these is a substance known as "Cork Feathers," which are very thin slices, or rather chips, of cork. This material, if attempts now in progress to fireproof it become successful, may very well become greatly in demand.

The material is handled by the same firm as that which manufactures Weston's Soluble Grinding Paste. This paste is widely used for grinding valves and is very popular with the Royal Australian Air Force and the R.A.F. in India. Private owners, air line operators, and others who have to overhaul aero-engines and are unfamiliar with this paste should follow the lead of Imperial Airways, who use it a lot.

Interested people should write to Mr. Stott, of Weston and Co. (London) Ltd., 8, London Street, Fenchurch Street, E.C.3, and mention THE AEROPLANE, which will secure for *bona fide* inquirers a large free sample.

THE WESTLAND LAWN TENNIS TOURNAMENT.

The finals of the Westland Lawn Tennis Tournament in aid of the Yeovil Hospital was held on July 26 at The Knoll, Preston Road, kindly lent by Mr. R. A. Bruce. The Tournament had attracted 42 couples. The Challenge Cup, presented by Mr. E. M. Benjamin, was won by Mr. and Mrs. Voake, who beat Mr. T. V. Taylor and Miss Gange in the final. Silver replicas, to be kept by the winners, were given by Mr. P. W. Petter and Capt. R. C. Petter.

Other prizes consisted of a silver cigarette case presented by Col. J. S. Matthews of the Dunlop Rubber Co. of Birmingham, a pair of pewter candlesticks presented by Mr. J. D. Siddeley, C.B.E., Armstrong Siddeley Motors Ltd., Coventry, a clock presented by Mr. David Longden of the Gloster Aircraft Company of Gloucester, a silver syphon stand presented by Mr. A. H. R. Fedden of the Bristol Aeroplane Co. of Bristol, a case of silver spoons presented by Mr. M. R. Hartley of Birmingham and Mr. E. O. Morris of Birmingham.

The prizes were presented to the winners by Mrs. R. A. Bruce.

MORTGAGES AND CHARGES.

ACCURATE RECORDING INSTRUMENT COMPANY LTD.—Particulars filed of £3,000 debentures authorised April 4, 1930, charged on the company's property, present and future, including uncalled capital, the whole amount being used.

PERSONAL NOTICES.

DEATHS.

LAIDLER.—On July 26, at Khormaksar, Aden, as the result of a flying accident, L-AC. Robert Angus Laidler, R.A.F.

LEES.—On July 23, after two days' illness, at St. Mary's Hospital, Paddington, Isabel, wife of Lieut.-Colonel Orde Lees, A.F.C., O.B.E.

MACKINNON.—On July 18, the result of an aeroplane accident at Bourke, N.S. Wales, Australia, Harry Lauchlan Mackinnon, younger son of Capt. W. and Mrs. Mackinnon, formerly of Mt. Plym, Totnes.

PILCHER.—On July 26, at Khormaksar, Aden, as the result of a flying accident, Geoffrey Norman Pilcher, Flg. Off., R.A.F.

Mr. Pilcher passed out of Cranwell in December 1925 and was posted to No. 100 (Bomber) Squadron, at Bicester. He was promoted to Flying Officer in June 1927 and in November 1928 he was posted to No. 8 (Bomber) Squadron at Aden, for Air Armament duties.

MARRIAGE.

ALLEN—UTTERSON.—The marriage took place on July 23, at Holy Trinity, Brompton, of Wing Cdr. Dermott Lang Allen, A.F.C., R.A.F., third son of Mr. Robert Allen, St. Ewolds, Jersey, and of the late Mrs. Allen, and Mrs. Beatrice Hamilton Utterson, widow of Lieut.-Colonel H. K. Utterson, The Dorset Regiment, and elder daughter of Sir Claude Hill, Lieut.-Governor of the Isle of Man, and Lady Hill.

FORTHCOMING MARRIAGES.

GORDON—RUNNACLES.—The engagement is announced between Robert MacIntyre Gordon, D.F.C., M.B., Ch.B., second son of the late Mr. A. M. Gordon and Mrs. Gordon, of Glasgow, and Cicely Cottingham, youngest daughter of the late Mr. E. H. Runnacles and Mrs. Runnacles, of Branwoods, Great Baddow, Chelmsford.

SLATTER—DAVIES.—A marriage has been arranged, and will take place quietly in September, between Leonard, only son of the late Alfred Slatter and of Mrs. Napier, of Durban, South Africa, and Cecil Nancy Ashwin, eldest daughter of Lieut.-Colonel Davies, of The Brewery House, Harlow, Essex.

BIRTHS.

FLETCHER.—On July 20, at Danescourt, St. James' Avenue, Thorpe Bay, Essex, to Marjorie, wife of Sq. Ldr. A. W. Fletcher, O.B.E., D.F.C., A.F.C., R.A.F.—a son.

YORKE-MOORE.—On July 24, at Manor House, Henbury, Bristol, to Rowena (*née* Sampson-Way), wife of Sq. Ldr. T. P. Yorke-Moore, R.A.F.—a son.

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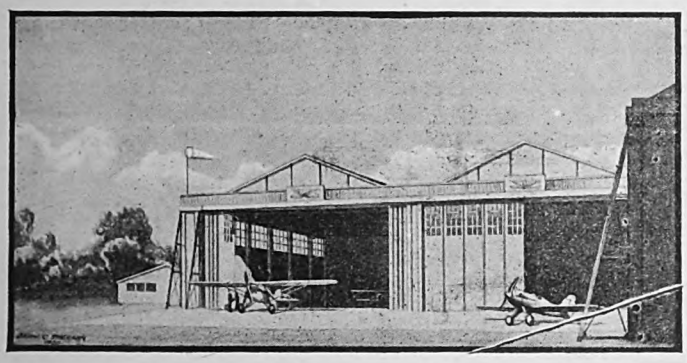

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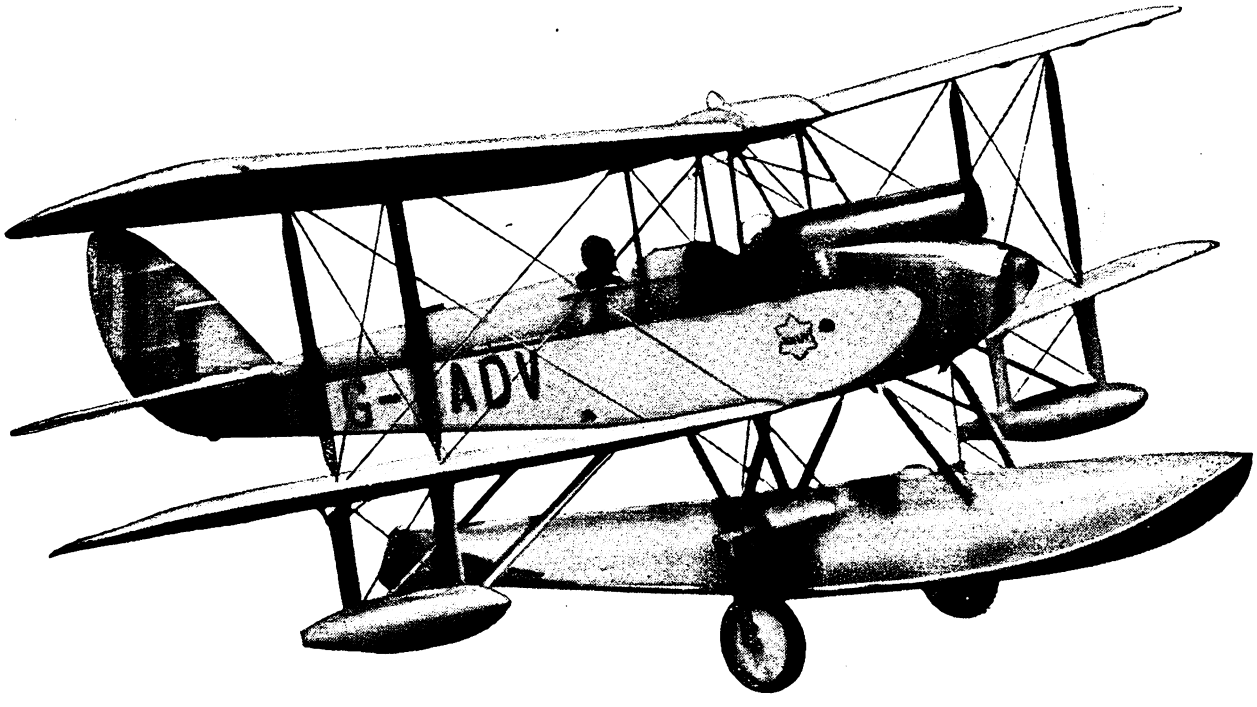

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THE AEROPLANE

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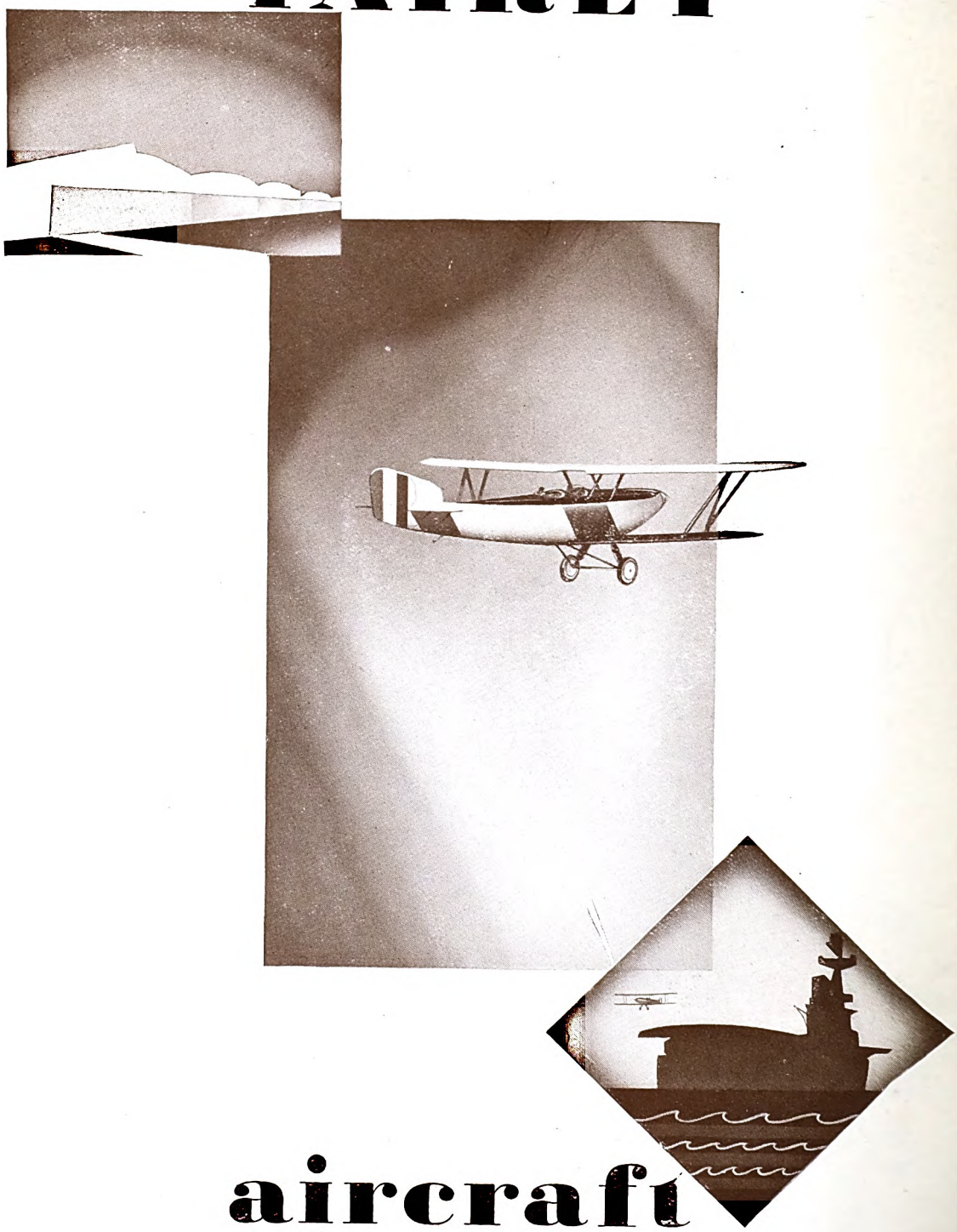

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A Policy for Airships.

When the *Graf Zeppelin* made her first trip to America she tore some fabric off her tail-plane, much as *R*.100 did. And since then she has crossed the Atlantic six times and has been all round the World and twice across the Equator—in spite of carrying petrol instead of heavy oil, which is our official excuse for not sending *R*.100 to India. The *R*.100 is faster than the *Graf Zeppelin* and has greater load-carrying capacity, so if she does not go round the World, including a call at Karachi, we are admitting her inferiority to the older Zeppelin ship.

Why that fabric tore ought to be explained. The speed of an airship is very slow compared with even the slowest aeroplanes, but we never hear of fabric tearing off an aeroplane. Admittedly the areas of unattached fabric on an airship are much bigger than on any aeroplane, but surely, with so much time taken in the building, some experimental work might have been done in this direction.

One suggests that the Air Ministry should issue a report on this, and on all other defects revealed and on all replacements found necessary in the ship and her power-plant, much as, from time to time, certain of our engine firms, after a long test, have issued a statement of the wear-and-tear of parts, and the cost of replacement. One seems to remember something of this sort being done by the De Havilland Co., and by the Bristol Co. in the past. These are good precedents,—and only thus can confidence be established.

More and Better Airships.

Meantime the *R*.100 has not done so badly for a trial trip. And if the Air Ministry has any real pluck and pertinacity it should set to work at once to build a couple more ships for Imperial Communications. They need not be bigger, but they should embody all the ideas which Mr. Wallis, the genius who designed this ship, acquired in the building of her and could not put into her. There will be time enough to build bigger ships when we have learned at less cost to build better ships.

The Lord Thomson, our enthusiastic Secretary of State for Air, has many a time enthused over airships, and Sir Samuel Hoare, his opposite number in the Conservative camp, while perhaps less enthusiastic, is no less firm in his faith in airships for over-ocean communications. So whatever is done about building new ships—and it ought to be done now—is sure of continuity with whatever changes of Government may be inflicted upon us.

We have heard a lot about Government schemes for decreasing unemployment—but none of them seem to have done much. Here, at any rate, is an undertaking which would employ many people and would ultimately bring direct profits.

There are those who prate about road-building as giving work to the unemployed. That is one of Mr. Lloyd George's favourite fallacies. Road-building gives employment, but it does not bring money into the country,—it seems only to bring more and more American automobiles. But airships, by speeding-up communications with our Overseas Dominions, especially with Canada, will definitely tend to bring trade.

We cannot build a road to Canada, but we can build an airship line which will bring the great Canadian commercial cities within three days of London. So let us set about it, right now.

What Canada Wants.

The Canadians want to do business with us if we will let them. But hitherto we have almost refused to trade. Until the De Havilland Co., and the Armstrong Whitworth-Siddeley-Avro group, and the Bristol Co., set up branches or formed working alliances with Canadian firms we practically left Canadian trade to the Americans. Now we are doing much better, as regular readers of this paper know. But we should do much better still, in all lines of business, if we had a three-day airship service to Toronto.

Admittedly it would not always be a three-day service. It might sometimes take four days, or even five. But it would at any rate take half the time of the steamships and would be much more reliable.

People who stay at home have an idea that steamships are as regular as English railways (and even they are not as regular as people think). As a matter of fact, if the figures for irregularity, what with gales, fogs, icebergs, and things, were published, the ordinary stay-at-home would be astonished, and would understand why the Marine Mind has no appreciation of Time.

Therefore, if our Labour Government wants to provide well-paid labour for willing labourers, instead of merely looting the real workers for doles for the idle, let it start out on a properly continuous airship programme, to cover at least fifteen years, with at least one new ship to be laid down each year. The number can easily be increased as the ships prove their usefulness.

Malta and the East.

The flight of the Puss-Moth to Malta and back illuminates quite another side of Imperial Communications. In the first place it makes thinking people ask why a lonely civilian in a purely commercial light aeroplane should make a flight which ought to be by now a regular journey for Service aircraft?

The Service community in Malta,—Navy, Army, and Air Force,—ought to have a regular air mail twice a week each way, carried in Service machines over the route followed by Mr. Barnard. Such flights would be good training for pilots of the R.A.F. And the design and construction of machines for this service would be good exercise for the British Aircraft Industry.

The non-stop flight to India in the Fairey monoplane by Sq. Ldr. Jones-Williams and Flt. Lt. Jenkins, since unhappily deceased, shows that there is no difficulty about building aeroplanes for such work. And the need for such aeroplanes is likely to be all the greater when we no longer control 'Iraq but become mere lessees of a couple of aerodromes West of the Euphrates.

DIRECT COMMUNICATION.—Mr. Charles Barnard and his Puss-Moth (inverted Gipsy), with Arens controls, on which he made the first non-stop voyage to Malta,—and back next day.—(*"Aeroplane" photograph.*)

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"AN engine which, by reason of its remarkable reliability and high efficiency, has still further enhanced the reputation of British engineering, is the Napier Lion engine, which is one of the finest in the world.

"Imperial Airways employ the Napier engine, as its outstanding features, namely, freedom from vibration, safety and economy in running, make it particularly suitable for commercial flying.

"The Napier Lion's popularity in the Royal Air Force is a striking testimonial to its excellence for Service use. Evidence of its popularity is given by the number of long-distance Service reliability flights for which the Napier has been selected. On every occasion the Napier has come through without mishap."

THE EMPIRE MAIL,
8 *April*, 1930

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Our Future in 'Iraq.

Those who take an intelligent interest in the affairs of the Empire should study the condensed version (which follows hereafter) of the speech made in the House of Commons last week by Sir Samuel Hoare. It is disturbing. And it is a fair warning that we may at any moment be called in to reimpose British Peace on 'Iraq.

While that job is being done we shall only be able to get our air mails to India by long hops from aerodrome to aerodrome. There will be no intermediate landing-grounds at which slow machines full of passengers can refuel if there happens to be a bit of a head wind.

Even if peace should by some miracle be kept without our help, we ought in any case to carry our mails over long hops at high speeds without passengers. And the route to Malta is the best all-the-year-round course.

The Air-Mail Route.

Our present slow and rather clumsy method of flying all over Europe, through France, Germany, Austria, Yugo-Slavia, and Greece, has certain advantages—in fine weather. It gives passengers plenty of fresh scenery. And in a way it "shows the flag" to lots of strange people and impresses on them the fact that those still more strange people, the English, can not only make aeroplanes, but fly them. But, when anything like a European argument is going on, there are too many countries to be crossed.

Years ago this paper tried to impress on our air transport people that the right way to the East is by land-plane to the Lac de Berre (near Marseilles, but not near enough to the Chicago of Europe, as Ferdinand Tuohy calls it, to be dangerous), and thence by fast flying-boat to Malta, and so to Cyprus and Haifa (Palestine) or to Port Said (Egypt),—thus using only ports which are under our own control, with the exception of the French bit, which means only one foreign nation with which to negotiate.

Apart from that, the R.A.F. ought to have established a non-stop service by flying-boat to Gibraltar years ago by way of showing that we can, in case of need, get to one of our possessions without crossing anybody's territory. We have been very slack about developing our Service communications as well as our Civil communications, and one hopes that Charles Barnard's fine flight will give some of the much-needed spur to such things.

The Proof of the Pudding.

Here one cannot resist a mild personal gloat, for the Puss-Moth is just the type of machine which one has been advocating for the past four or five years—getting badly disliked by some people in the Aeroplane Trade in consequence. All that while one has been arguing in favour of cabin machines with a cruising speed of somewhere between 110 and 120 m.p.hr., which is just about what the Puss-Moth does with her 120 h.p., and the equivalent of three people aboard, although those hostile to this paper's progressive policy said that it could not be done.

Now one wants 150 m.p.hr. as cruising speed and 165 or 170 m.p.hr. as top speed,—and the Segrave Meteor with her two Gipsy engines is not so far off that. But meantime the Puss-Moth is good enough to go on with, as a single-engined job.

Also, for five or six years, one has been arguing in favour of inverted engines (or hanging motors, as the Germans call them more simply). One wanted them so as to get a better view, a higher thrust-line, and more clearance for the airscrew. And of course one was called an interfering fool for one's pains. And, equally of course, the De Havilland Co., progressive as usual, proved one was right. Since when the hanging Argus, in various German machines, has done likewise.

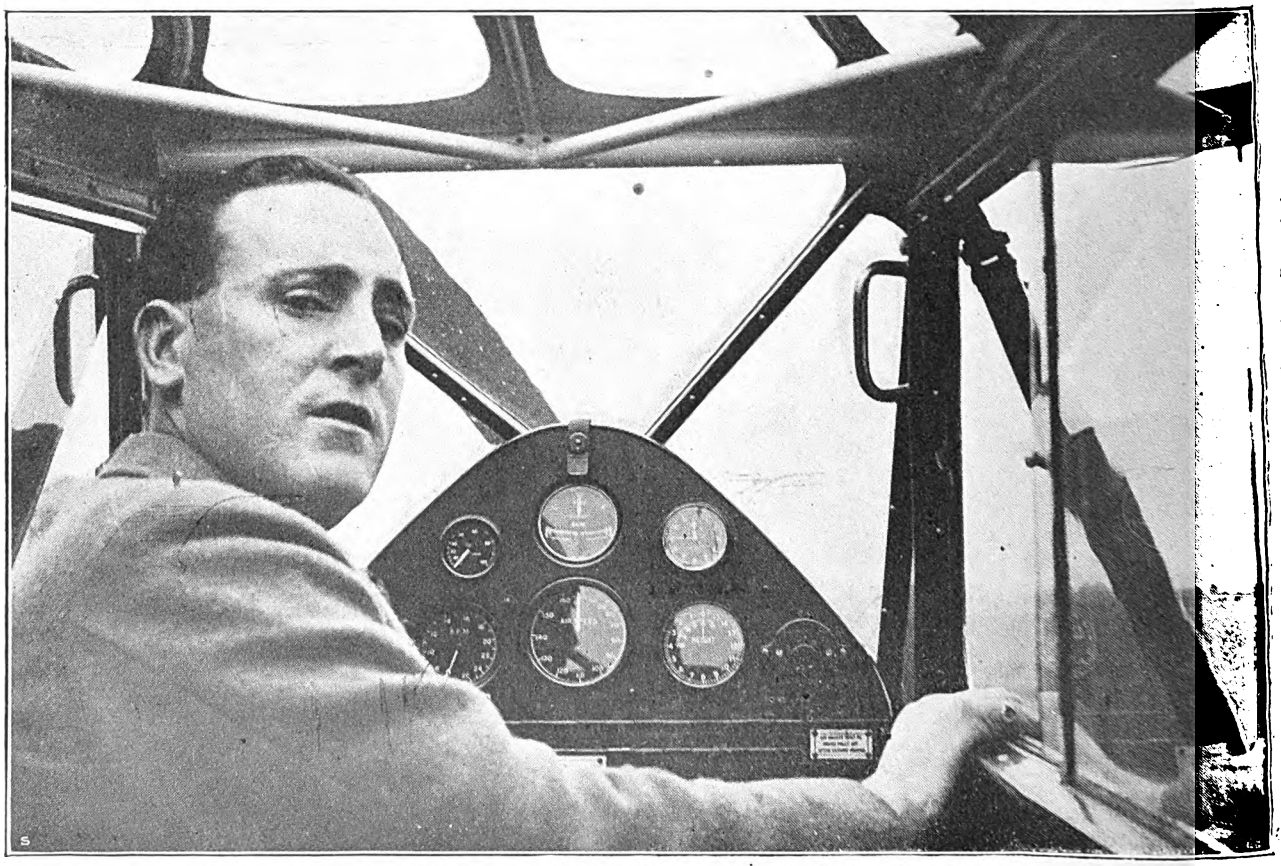
Further, one has a certain personal satisfaction in the demonstration given by the Arens people of the practicability and safety of a properly designed and properly fitted remote control. For the benefit of the non-technical one may explain that a remote control is a mechanism which transmits power and/or motion between two points which are not fixed in relation to one another.

Apart from electricity and hydraulic power, the first thing of this kind that one remembers was the Bowden Wire mechanism. Most people call any old stranded wire a Bowden; but in fact the Bowden patent lies in the outer coil of wire in compression against which the interior cable does its pulling. One spent the years 1903 and 1904 and part of 1905 demonstrating to the bone-headed motor and motor-cycle and cycle trades how that form of remote control worked. And their obtuseness was a useful apprenticeship to a certain type of mind which has afflicted the Air Trade.

When one found men who were chief designers in expensive motor factories who could not grasp the principle of a Bowden wire one almost despaired of one's country. But it still survives and one finds the descendants of those same men mis-designing aircraft and aero-engines to-day.

One has never liked exposed cables lying about inside, or outside, aeroplanes,—they are too likely to get tangled up, or sawn through, or stuck in fair-leads. And one is not particularly in love with bell-cranks and push-and-pull rods, because they bend and jam too easily. So there seems good reason for using some form of remote control.

Just why the Bowden mechanism was never fully de-



ALL ALONE.—Mr. Charles Barnard in the Puss-Moth with Arens controls, in which he flew non-stop to Malta, and non-stop back next day. The board of Smith's Instruments is well shown.

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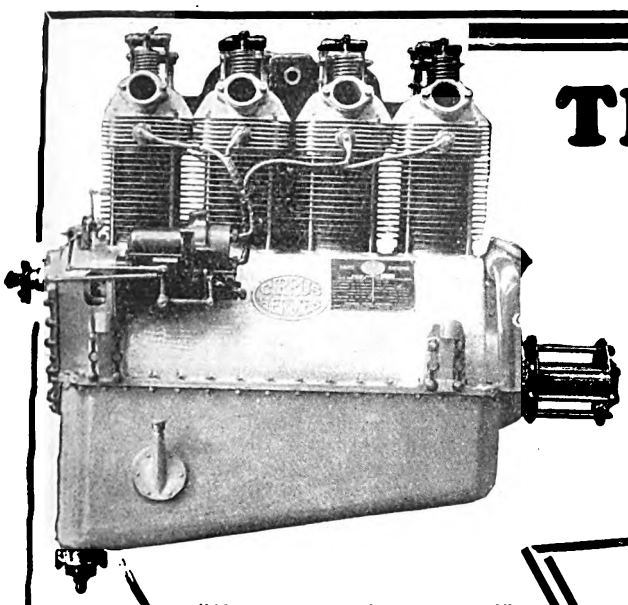

THE OPINIONS of PILOTS

WHO FLEW BEHIND HERMES ENGINES IN THE KING'S CUP RACE.

"The Hermes engine ran magnificently throughout the trip. It was exceedingly smooth running—noticeably so, and I really had to comment on this point to everybody I met."—L. H. SLATTER.

"The engine ran very smoothly during the race."—R. G. CAZALET.

"This is just to say how well my Hermes behaved in the recent King's Cup Race . . . the engine had been running at full throttle for about seven hours. At each control I felt the sump, and each time it was not hot enough to warrant changing the oil."—J. F. X. McKENNA.

"I feel that I owe you a short letter of thanks for having produced the Hermes engine fitted to the Parnall 'Elf' which I flew in the last King's Cup Race.

Naturally I flew at full throttle the whole way round the course, during which time the R.P.M. were never less than the maximum permissible under the C. of A.

There was such a complete absence of vibration.

Two other features of your engine . . . First the ease of starting—and secondly the very reasonable petrol consumption at full throttle."—

H. A. PRESTO.

"You will doubtless be glad to know that the Hermes in my Bluebird behaved perfectly during the race for the King's Cup.

I ran it all-out from start to finish. At the end it was giving exactly the same number of revs. as at the beginning."—TOM ROSE.

"The engine, although running at full throttle throughout the entire race, can only be described as having behaved perfectly. No adjustment of any kind was made, nor was any necessary. The revolutions at the end of the day were the same as at the start.

The smoothness with which the engine ran was a very noteworthy point."—E. W. PERCIVAL.

FURTHER RELIABILITY

5,000 miles course of the International Touring Competition completed to schedule by Mr. S. A. Thorn, flying a Hermes Avian.

SPEED

Capt. E. W. Percival, flying a Hermes engined Hendy 302 won the Hanworth-Reading-Farnborough-Hanworth Race at an average speed of 128½ m.p.h.

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veloped for aeroplane work and why it is not universally used in motor-cars one has never troubled to discover. But evidently the Arens people have overcome whatever objection there is to the Bowden mechanism, so good luck to them. If they have got the goods the result will be aeroplanes which will be much cleaner inside and outside, and even such things as routine inspection of engines will be simplified by the absence of cranks and levers and wires.

Anyhow the Puss-Moth has definitely proved itself,—even better than if it had gone round the Tour of Europe. And the demand for the Puss-Moth shows how right the De Havilland people have been.

On the strength of the approval which met the first one last year, the firm boldly laid down a "series" of twelve. Before the first of the twelve was delivered over a hundred had been ordered. And to-day the orders are well away towards the second hundred. Which at £1,000 each is not such bad business. And it shows what rewards await enterprise.

BUSINESS VISITORS.

There is business to be done with British aircraft if we will go out after it the right way. Within the past week this office has been visited by four influential representatives of Overseas Dominions. And all of them are looking round to see whether they can do trade with us.

One of them is Mr. J. A. D. McCurdy, the Canadian pioneer, and colleague of Glenn Curtiss, who is one of the moving spirits of the Curtiss-Reid Co. of Montreal. With him is Mr. Geoffrey Beck, late of the Yorkshire Aeroplane Club, and now Chief Pilot of the Curtiss-Reid outfit. They are trying to find aeroplanes here which can be built in Canada, if better than American airplanes.

Another is Mr. E. B. Wilshire, Chairman of the Aero Club of New South Wales. He has just spent three months studying aviation in the States, and has flown several thousands of miles there, piloting himself. What he does not know about American aircraft is not much. And we have to convince him that ours are better.

The third is Mr. J. L. Rigby, of Melbourne. He likewise wants to know what we can offer which is better than anything in the States, and whether we can do trade on as good terms as the Americans offer.

Their opinions are worth having, and one wishes that one dared to publish them. But at any rate they seem to find an improvement in this country. They admit that we have some very nice aeroplanes. And they seem to have met several people in the British Aircraft Industry who strike them as being businesslike. So that is something to the good.

Besides that, the other day a Canadian financier called who had been spending some three months on holiday here. He said that he arrived feeling thoroughly depressed after the Wall Street crashes, but that after some weeks in Devonshire and some days in Threadneedle Street, he had come to the conclusion that this country is not played out by a long way.—Which is just about what one has been preaching in these pages for the past year. Only, we *must* wake up and get going.

SIGNS AND PORTENTS.

There are signs and portents of such an awakening. Men are coming into the Aircraft Industry who are old in experience though new to the Trade. We are seeing now the first-fruits of Sir Robert McLean's work in Vickers (Aviation) Ltd. We learn this week that Sir John Higgins, one of the ablest men the Royal Air Force has ever known, is coming into the Trade (as noted in the R.A.F. Section of this paper). We have still to see the effect of Lord Trenchard's influence as a Director of the British Goodyear Company,—but we shall see it, all in good time.

They, and others like them, realise the import of Imperial Communications. The slower, or more narrowly commercial, minds connected with the Trade, will find that within the next year or two they will simply be left behind by men with real vision and enterprise. And those who have intelligence will do well to take last week's good work as a warning to wake to their opportunities and to act accordingly.—C. G. G.

THE FUTURE OF 'IRAQ.

The recent British Treaty with 'Iraq was the subject of a speech by Sir Samuel Hoare, formerly Secretary of State for Air, in the House of Commons on July 31 during the debate on the second reading of the Appropriation Bill.

Sir Samuel Hoare said that it should be a matter of some pride and satisfaction to every Member of the House to think that, mainly owing to the efforts of our civil administrators and the Air Force officers in 'Iraq, such a transformation should have been made possible in so short a time and that we should find ourselves to-day in the position of being the first mandated Power under the Peace Treaties to fulfil, in the main, our obligations and be able to hand over the duties we had hitherto performed to an independent 'Iraq State.

A passing tribute was well merited from all quarters of the House to the handful of British civil administrators and Air Force officers and men who had made this result possible. There was Sir Percy Cox, Sir Francis Humphrys, Sir John Higgins, Sir John Salmond and other names which one could add. These were the men, the civil administrators and serving officers and men in the British Air Force, who had made it possible for us to contemplate in five years' time handing back our Mandate to the League of Nations with the credit to ourselves of having carried out in the face of the very greatest difficulties the task that had been entrusted to us ten years ago.

There were one or two considerations to which he would like to draw the attention of the Under-Secretary of State. At present the main interest of Great Britain in 'Iraq was the maintenance of Imperial Communications and particularly our air communications.

'Iraq lay midway on the air route between Great Britain and India and the Far East. It was a vital section in that route and in any arrangements we made with 'Iraq in this Treaty or in other agreements it was vital that the security of our Imperial communications, and particularly our air communications, should be maintained.

So far as he could judge he thought they were safeguarded under the clauses of the Treaty. The Government of 'Iraq was a member of the International Air Convention and was therefore under an obligation to allow the free passage of civil aeroplanes and civil air lines. So far as civil lines were concerned there was no reason for criticism against the terms of the Treaty or against the present position.

So far as our military communications were concerned he thought there was no substance for serious criticism. But it was vitally important in the development of our system of air defence that we should be able to transfer air squadrons quickly from one part of the world to another. If we could not do so then we did not obtain the full advantage of the mobility of air power. It was therefore vital that we should have in 'Iraq, after the period of the Treaty, facilities for maintaining air bases and make it possible to take our air squadrons quickly from Egypt to India, Singapore, or Australia.

Under the Treaty two bases, one near Basrah and the other on the west of the Euphrates, were guaranteed to the British Government and to the British Air Force. So far as the bases were concerned we need not feel any anxiety. But he was somewhat nervous as to what was going to be the position of these bases and of the squadrons when we laid down the Mandate, when we had no longer a High Commissioner in Baghdad and when our representative in 'Iraq was nothing more than an ordinary diplomatic Minister.

So long as we were the mandatory Power we could prevent the abuse of British Air Force squadrons and we could ensure their being used only when a real justification existed. It would not be easy to define the occasions when the Air Force should be used and when it should not be used,—that it would not be used, for instance, to prevent internal disorder, but that it would still be used for the protection of the frontier against external aggression.

Unfortunately in countries like 'Iraq it was often very difficult to draw a clear distinction between the two. You got a raid out of the mountains or a Bedouin raid in the deserts in the South-West, and in actual practice, looking back over our experience of ten years, it had been extraordinarily difficult to say clearly when internal disorder ended, when a threat by an external enemy began, and when a raid developed into a war.

He presumed that there would still be squadrons of the Royal Air Force at the two bases contemplated in the Treaty. It was most important that when we had ceased to be the mandatory Power and we had no longer a High Commissioner representing the mandatory Power in Baghdad, those squadrons should not be used as the mercenary squadrons of the Government for which we were no longer responsible, and that the British Air Force should not be used in these positions for maintaining order in a country for which we had ceased to hold the Mandate.

THE UNDER-SECRETARY OF STATE FOR THE COLONIES (DR. DRUMMOND SHIELS), replying to Sir Samuel Hoare, said that the present position was that there were three air bases in 'Iraq, one at Hinaidi, one at Mosul and one near Basrah. The position as it would be five years after the Treaty came into force, was set out in the Treaty which had been published as a White Paper. He quoted to the House the appropriate passage:—

His Britannic Majesty shall maintain forces at Hinaidi for a period of five years after the entry into force of this Treaty in order to enable His Majesty the King of 'Iraq to organise the necessary forces to replace them. By the expiration of that period the said forces of His Britannic Majesty shall have been withdrawn from Hinaidi.

It shall be also open to His Britannic Majesty to maintain forces at Mosul for a maximum period of five years from the entry into

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An Aircraft with many applications.

THE Atlas 2-seater steel aeroplane has been used for three years as standard equipment for the Royal Air Force. It has a wide field of application and can be used for army co-operation duties, for advanced two-seater training and as a seaplane. It is available with the Jaguar or Jaguar Major engine, with which it becomes a two-seater fighter of outstanding quality.

SIR W. G.

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force of this Treaty. Thereafter it shall be open to His Britannic Majesty to station his forces in the localities mentioned in Article 5 of this Treaty, and His Majesty the King of 'Iraq will grant to His Britannic Majesty for the duration of Alliance leases of the necessary sites for the accommodation of the forces of His Britannic Majesty in those localities.

For this purpose and in order to facilitate the discharge of the obligations of His Britannic Majesty under Article 4 above His Majesty the King of 'Iraq undertakes to grant to His Britannic Majesty for the duration of the Alliance sites for air bases, to be selected by His Britannic Majesty at or in the vicinity of Basrah, and for an air base to be selected by His Britannic Majesty to the west of the Euphrates.

It was true that the actual locations had not yet been selected, but they were to be chosen by us and they would be selected and the bases actually constructed before the expiry of the five years after the Treaty came into force. Under the new Treaty the present High Commissioner or his successor would become not an ordinary diplomatic Minister, but an Ambassador with precedence over the representatives of all other Powers in Baghdad.

The chief danger of frontier disturbances lay in the possibility of tribal raids from outside the country's border. He did not contemplate that British forces would need to intervene in such cases. With regard to more serious and more remote possibilities the Treaty itself provided the necessary safeguards. Article 3 laid down:—

Should any dispute between 'Iraq and a third State produce a situation which involves a risk of a rupture with that State, the High Contracting Parties will concert together with a view to the settlement of the said dispute by peaceful means in accordance with the provisions of the Covenant of the League of Nations and of any other international obligations which may be applicable to the case.

Then the whole Treaty was conditioned by Article 9:—

Nothing in the present Treaty is intended to or shall in any way prejudice the rights and obligations which devolve, or may devolve, upon either of the High Contracting Parties under the Covenant of the League of Nations or the Treaty for the Renunciation of War signed at Paris on the twenty-seventh day of August, one thousand nine hundred and twenty-eight.

He thought therefore that any premature or unjustified employment of British forces was adequately guarded against.

He was very glad to be able to associate himself with the tribute paid by Sir Samuel Hoare to the work of those British civil officials and to all ranks of the Royal Air Force who had been in 'Iraq during the last years and who had helped 'Iraq to reach the final stage of complete independence contemplated in the Treaty.

On the other hand it was only proper that we should recognise that this result could not have been obtained without the statesmanship shown by His Majesty King Feisal. In nine short years King Feisal had made a nation and a name in history. Mesopotamia, now called 'Iraq, was regarded as a sacred land in many an Empire home. Thousands of British lads lay there and it was gratifying that the bond of sentiment thus made had now been reinforced by a Treaty which united the two countries in a friendship which he was sure would be a lasting one.

Sir Hilton Young said that the most promising circumstances as regards the prospect of this relation working out satisfactorily was the free recognition in the Treaty which had been established by the Government of 'Iraq, that the protection of the Imperial air routes and Imperial communications was a permanent interest which would be guaranteed by the 'Iraq State. That secured the protection of the Imperial interest, but great forethought would be necessary on the part both of the 'Iraq Government and of the British administrators involved for the establishment of a sufficiently close connection to enable the functions which would be exercised on the spot by the Imperial Air Force to be exercised with efficiency, discrimination and effect.

ADVERTISING AVIATION.

Magna est Daily Mail et prævalet,—even though the *veritas* has to be removed to make way for it. On Monday, Bank Holiday (Aug. 4), *The Daily Mail* told its readers, with its usual cocksureness, that Miss Amy Johnson would arrive at Croydon at 6 p.m. (18.00 hrs.). Also it told its readers:—

A great space, 900 yards long by 500 yards deep, has been railed off on the east side of the aerodrome from which an excellent view of the arrival and the subsequent official reception can be obtained.

As things happened, thanks to a strongish but dead flat West wind, the Imperial Airways Argosy in which Miss Johnson was travelling arrived at 21.00 hrs., and, thanks to Air Ministry wisdom, the "great space" was on the *West* side of the aerodrome, along the line of where Plough Lane and the old air-port used to be. If you imagine yourself standing fifty yards further back than where the old Custom House was, and looking at a performance on the new Brighton Road, where the aerodrome buildings now are, you will have a good idea of the "excellent view of the arrival and the subsequent official reception" which was obtained at 21.00 hrs. by those innocents with cars who were herded by the police into that great space.

But some tens of thousands on foot, believing their *Daily Mail*, congregated along the *East* side of the aerodrome, and stood alongside the roadside for multitude, for there was no room for them in the inn. And most of them were women and children. They would have blocked Purley Way, as that part of the New Brighton Road is called, completely, but for the patient and perspiring police. And, being foolish obstinate Britishers, they stayed there from about 17.30 hrs. till about 22.00, when *The Daily Mail*, having toted poor tired Miss Johnson round the pitch-dark aerodrome, past the "great space" on the West, began its procession of highly-coloured cars towards London.

Now, if an ordinary shop-keeper arranges a particularly attractive window display and blocks half the pavement in front of his shop for an hour or so, he is prosecuted by the police. But not so *The Daily Mail* when it blocks one

AT THE COOL OF THE EVENING.—On the apron at Croydon, waiting for the long-overdue Argosy.
—("*Aeroplane*" *photograph.*)

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26,868 Feet

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on a 100-110 h.p. Genet Major-engined D 18 Aircraft, 8142 metres (26,868 feet.)

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of London's greatest main roads on a Bank Holiday for four hours. The power of the Press prevails over the Law.

Also *The Daily Mail* prevailed upon three Cabinet Ministers, two male and a female, to act as *compères* and *commère* at the flood-lighted comedy which it staged after the delayed arrival. Poor Miss Johnson, looking terribly tired after being battered inside an Argosy from 07.00 hrs. at Vienna, till 21.00 hrs. at Croydon (think of 14 hours of it, you who have been deafened in 2½ hours between London and Paris), was haled up to a dais, onto which the aerodrome's French floodlight was turned, for the benefit of the privileged few on the concrete apron, and on the roof of the hotel and the aerodrome buildings.

Those on the apron could hear nothing, what with the engine of the searchlight, the engine of Miss Johnson's old Moth, *Jason* (which was singing greetings to her, and was, as a criminal bystander remarked, too adjacent), and the Bristol Titans of a recently-arrived Sabena-Fokker. But one gathers that the speeches broadcast quite well.

Lord Thomson said his usual graceful piece about youth, beauty, airmanship, femininity and so on.

Miss Johnson told the World that she was sick of seeing herself in print (which is quite likely, for most of the stuff written about her is quite an effective emetic), and she was sure the World was sick of her (which is not true, we are only sick of seeing a very gallant and very capable young woman used as a tool for newspaper stunts). Then she read carefully a much too long speech, which one is ready to bet she did not write herself. And she entreated the World to call her "Johnnie,"— which one hopes is part of the newspaper stunt, and not of her own free will. And at the end she fortunately remembered to thank The King for her C.B.E.

Then Miss Bondfield made the best speech of the night, when she said that it was quite time Miss Johnson was tucked up in bed.

And after that, those of us who had had to be there, either to see professionally, or to be seen for publicity, went home.

Actually the star turn of the show, though he will never get credit for it from the press, was Mr. A. B. Youell, commonly and erroneously known as Jimmy, of Imperial Airways, who was chief pilot of the Argosy. Barring stops for filling up, and possibly spells of piloting by his engineer, he had flown that machine from Vienna in the day. He had been on the job for fourteen hours—which is more than a fair day's work for any man. And he touched ground with a few feet to spare between his left wing-tip and the crowd on the apron, as if he had been putting a box-kite down in a landing competition.

Praise should be given also to Mr. C. F. Griffiths, the engineer, and Mr. H. C. Robinson, the radio operator. All three, apart from the fourteen-hour journey, had been up all night in Vienna on a repair job.

The actual arrival was really rather beautiful. Heavy rain-clouds with the glow of the sun seen under them to the West. A bright half-moon to the South. The lights of the Control-Tower to the East. And past it came the big Argosy, with her navigation lights on, and her three Jaguars roaring steadily, and three Moths in attendance.

Jimmy swung twice round the Tower on a steep bank, came in low over the A.D.C. sheds, and did a quite perfect three-point landing right in front of the dais. Then he swung round on the ground, and brought the machine to a standstill with the door exactly opposite the dais whereon the notabilities and notorieties were awaiting their victim. It was a sweetly pretty bit of work. It alone was worth the trouble of going to Croydon and the annoyance of having one's holiday spoiled to make a *Daily Mail* advertisement.

And, newspaper fashion, it was accompanied by the wettest display of broadcasting to which our poor unfortunate aviation has been subjected. The broadcaster was advertised as Mr. Holt Marvel. He was all that. He managed marvellously to make pretty nearly every mistake that could be made in the use of flying terms. And when he announced that Mr. Youell was "stalling in to land" he nearly broke the journalese record.

Still, *il faut souffrir pour etre belle*,—and presumably aviation has to suffer to reach the popular boom which is going to make all our fortunes. Probably *The Daily Mail* knows the British Public better than we do. And anyhow, having given £10,000 to Miss Johnson, it naturally has to get £20,000 worth of advertisement out of it, or it would not be a business proposition. Anyhow, here is best part of a page advertisement in The Aeroplane towards it.

But the whole show was a bad advertisement for aviation. Three hours late with the mails from India to England does not sound bad. It is better than the boats by days. But three hours late from Vienna definitely *is* bad. Imperial Airways Ltd. and the Air Ministry were both foolish thus to let themselves in for a thoroughly bad advertisement for the sake of tagging themselves onto a *Daily Mail* stunt.

—C. G. G.

THE SCHNEIDER IMBROGLIO. IV.

In reply to inquiries the Royal Aero Club announces that it has only returned entries that have not conformed to the unalterable conditions governing the Schneider Contest, 1931, issued by the *Fédération Aéronautique Internationale* in January, 1930.

There is no foundation for any suggestion that the Royal Aero Club declines to organise the Schneider Contest, 1931.

[For the benefit of those who do not understand, we may compare the position of the F.A.I. with that of a man who has a safe with a time-lock. Having set that time-lock in January, 1930, to open in September 1931 (the limiting date for the 1931 Contest), he cannot open his own safe till the time-lock which he himself has set allows him to do so,—except by bursting the safe open and wrecking it as a safe.

In other words, the Rules and Conditions having been fixed in January, 1930, to cover the 1931 Contest, the F.A.I. itself cannot re-open the discussion till the date for the 1931 Contest is past. If it does so it must necessarily wreck all the principles of International sport and destroy all confidence in the F.A.I.—C. G. G.]

MALTA NON-STOP—AND BACK.

The following is the brief official statement from the De Havilland Aircraft Co. Ltd. concerning Capt. C. D. Barnard's flight non-stop to Malta on July 31 and back non-stop next day, Aug. 1 (a Friday):—

Successful attempt to fly from England to Malta non-stop in one day and return non-stop the following day. Pilot, Capt. Barnard; Aircraft, Puss-Moth (Gipsy III); equipped with extra tanks for 100 gallons in all.

This Puss-Moth is the property of Arens Controls Ltd. and is the first aeroplane in Europe to be fitted with Arens Safety Control for rudder, elevator and ailerons. Engine controls are also so actuated.

Total miles flown, 2,800. Flying time, 27½ hour (13 hours outward journey and 14½ return). Average speed, 110 m.p.h. Petrol used, 140 gallons. Oil used, 2 gallons.

In 1923 Barnard was the first man to land an aeroplane in Malta (D.H.9, Siddeley Puma engine). This engine was approximately twice the horse-power of the engine used in the Puss-Moth. The Puss-Moth weighed just about one ton when Barnard took off. Had on board letters addressed to the Governor of Malta from Sir Sefton Brancker and Mr. J. H. Thomas.

THE FINDING OF MR. HOOK.

The body of Mr. Hook was buried at Prome on July 31, whither it had been conveyed from the Jungle, by the expedition which found it, where it had been washed down the river alongside where he had been left.

Mr. Hook and Mr. Matthews crashed between Akyab and Rangoon while attempting to reach Australia. Mr. Matthews was able to struggle to Prome to get help for Mr. Hook, who had collapsed in the jungle.

FOREIGN AIRCRAFT AND BRITISH REGISTRATION.

The following letter expresses a view which is held by many people in this country:—

Sir,—On consideration of the Meopham fatality and the consequent correspondence, it would appear *to a layman* that those responsible for the safety of commercial flying in this country ought to be able to disperse one or two doubts.

We are told, and believe, that we have the finest Government Inspection Service in the World, both in respect of design, manufacture and materials of our aircraft and also of their condition for service. Does this scheme of inspection extend abroad?

Foreign aircraft with British registration letters presumably have the equivalent of our Certificates of Airworthiness. When one considers the care and expense we go to to ensure the safety of travellers in British aircraft, this state of affairs needs some explanation

Incidentally, the position is most unfair to the ordinary traveller, because he probably believes that all machines with our registration letters are British-built,—and therefore he may travel with a false sense of security.

It is also unfair to our manufacturers, who must go to great expense to satisfy the exacting needs of our authorities and yet are deprived of their rightful market.

In reporting the next crash, the daily press will undoubtedly add this one to their usual list of horrors and it will go down to posterity, as a "British disaster"—and so swell our statistical figures.

In conclusion, *as a layman*, I would like to know how metal- or plywood-covered monoplane wings, without any external bracing, can be satisfactorily examined for their daily duty. It would appear that those varieties which are strutted to the fuselage are not so in need of such examination—(Signed) B. Stacey.

[Those in this country who are interested in the operation or importation of foreign aircraft are welcome to state their point of view in these columns.—C. G. G.]

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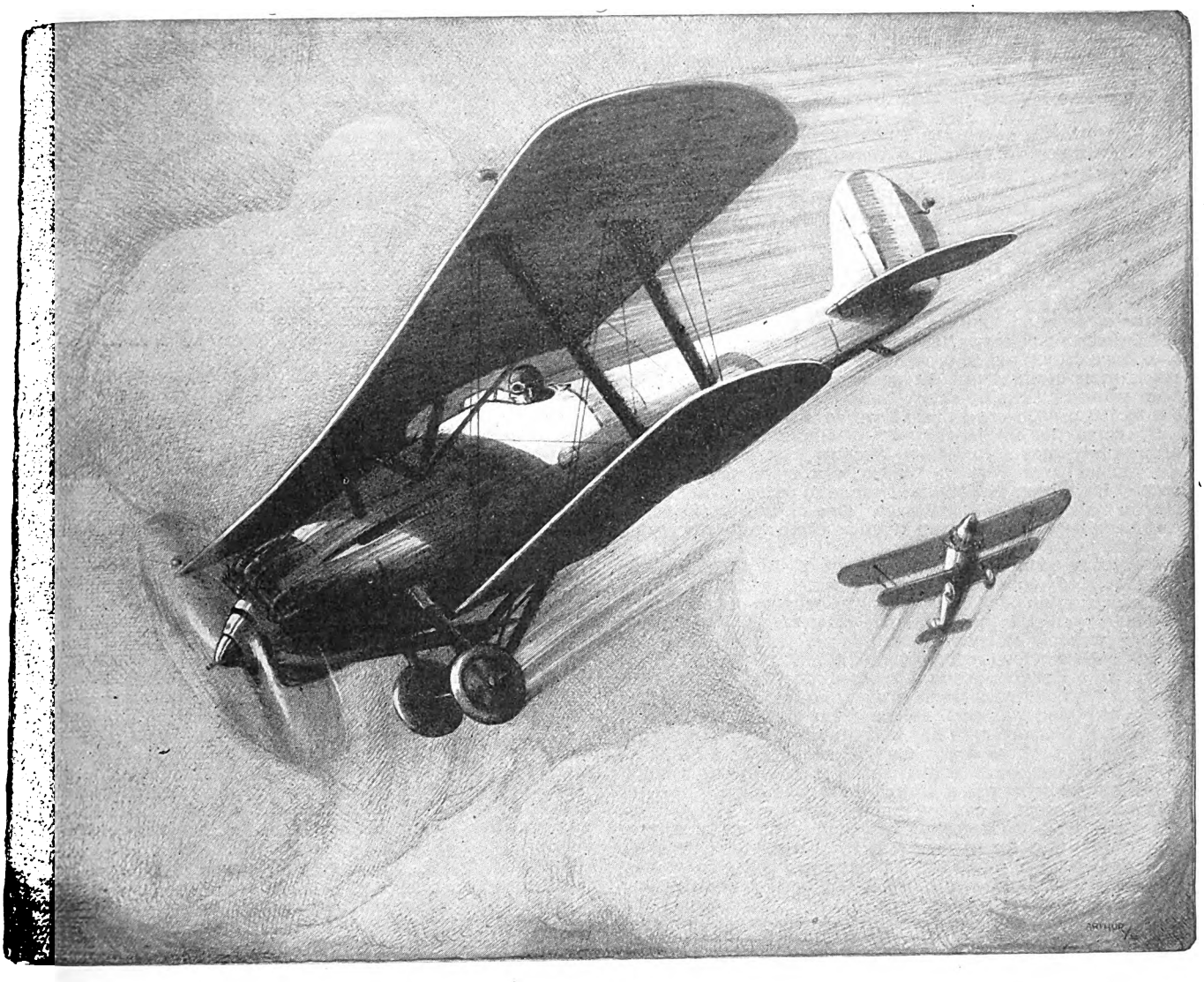

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BULLDOG

ALL-STEEL SINGLE-SEATER

FIGHTER

has been described as "the finest example of steel construction the aeronautical world can show to-day." In the air its supremacy is no less marked, and as a single-seater fighter for day and night service it yields place to none.

THE BRISTOL AEROPLANE CO., LTD. FILTON, BRISTOL.

Telegrams: Aviation, Bristol. *Telephone: 3906 Bristol.*

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R.100 CROSSES THE ATLANTIC.

The R.100 left Cardington at 03.48 hrs. on July 29, and reached St. Hubert, Montreal, at 02.25 hrs. on Aug. 1, but did not go to the mooring tower till 05.36 hrs. (about 10.20 hrs. British Summer Time), as Sq. Ldr. Booth apparently did not care about mooring to a strange mast in the dark.

The actual journey of 3,364 miles was made in exactly 79 hours. The journey over the ocean appears to have been uneventful, with favouring winds (thanks to the advice of the Meteorological Office), but rougher weather was encountered closer to Montreal. About 200 miles away from the city the fabric on the fins is reported to have been damaged, and slowed down the speed of the ship. At one time she ran into a thunderstorm, with the result that her height varied suddenly between 2,000 ft. and 4,000 ft.

Photographs of the officers and crew appeared in THE AEROPLANE for July 30.

The R.100 has crossed the Atlantic and airships as a means of crossing that troublesome piece of water are still 100 per cent. efficient, whereas about fifty per cent. of those who have attempted to cross it by aeroplane have failed to reach their destination. Altogether the North Atlantic has been crossed by airship twelve times,—which means by about 500 to 550 people,—and there have been no failures.

Of some 24 heavier-than-air attempts, nine (with 23 people) have got across from West to East and two (with six people) from East to West. Six machines (with 18 people) have been picked up at sea, and seven (with eleven people) have sunk without trace. One or two of the losses may have been omitted even then, as these foolhardy efforts are difficult to trace.

Everybody connected with the flight of the R.100 is to be congratulated, especially those connected with the design and construction of the craft because reliable data for such transport vehicles is almost non-existent. The published matter probably is voluminous, but practical experience is scarce. Particular credit is due to Mr. V. N. Wallis, whose genius as a designer made a mass-production job out of a "one-off" order. And credit is also due to Major P. Litherland Teed, who was personal assistant to Mr. Wallis, and to Mr. J. S. Norway, who has had the privilege of travelling in the ship in whose design he had so much of a hand.

The flight, like most British enterprises with the backing of the Air Ministry was a miracle of organisation.

The whole event is causing much jubilation which is probably largely due to a feeling of relief. The airships have been coming out for so long and have been going to start on various trips so many times that people began to wonder whether R.100 would ever hang by the nose to the mooring tower at St. Hubert.

After the comparatively unheralded passages of the *Graf Zeppelin* up and down the World, together with various crossing by this craft of the Atlantic both North and South and these with freights of paying passengers, the jubilation about this one British success seems a little exaggerated, especially when the ship was delayed by damage to the fins after what had been hailed as a record crossing.

We shall only be able to rejoice with justification when our airships carry more people, more cheaply and more rapidly, than competing airships. The mere fact that we have built a bigger ship is of little practical import. That we have built the fastest ship is more important, but even then we cannot crow about it until the fabric stays put. Considering that aeroplane fabric holds on at over 350 m.p.hr., there must be something wrong with the fixing of airship fabric which parts company at 80 m.p.hr. or so.

The ship started with 10,440 gallons of fuel of which about 1,500 were left after the ship had been moored.

On Aug. 1, Lord Willingdon, the Governor-General of Canada, received a message from the King expressing gratification at the successful inauguration of airship communication between the Motherland and Canada.

Lord Willingdon, in reply, said:—

> The people of Canada have given a most enthusiastic welcome to those who have undertaken this most successful flight and are proud that their country is the first in the Empire to inaugurate with the United Kingdom this great experiment.

Lord Willingdon expressed his thanks to his Majesty and hoped that this venture would be a practical bond between all parts of the British Empire.

Reuter states that the U.S. Navy Department has issued the following statement regarding the flight of R.100:—

> The Navy sees in this splendid flight of the R.100 another step towards shortening world routes and bringing closer the United States of America and Great Britain through our own neighbour Canada.

That is just what one would expect from the U.S. Navy, which includes some of the finest sportsmen in the World.

THE UNIFORMS OF AIRSHIP CREWS.

In the House of Commons on July 31, in reply to a question by Col. Ashley, the Under-Secretary of State for Air said that the members of the crew of the airship R.100 were civilians, and were required to pay for their uniform (jackets and trousers), which would become their property. This did not apply to the caps and badges, which were a free issue at public expense, and not their property.

THE AIRSHIP FOR THE PRIVATE OWNER.

The President of the Goodyear-Zeppelin Company, Mr. Percy W. Litchfield, travelled back to America from Europe in the *Bremen*. When the ship reached the quarantine station one of the blimps which have been built by the Goodyear Co. was hauled onto the deck of the *Bremen* and took Mr. Litchfield off to Long Island aerodrome, so that he might fly to Akron, Ohio, the home town of Goodyear.

For this kind of ship-to-shore transport the small airship has much to commend it, especially the type of blimp used on this occasion, which has a totally enclosed and comfortably furnished cabin.

TO REMOVE MISAPPREHENSION.

Certain of the London papers recently published a paragraph concerning an Imperial Airways machine which had come down on the Eastern Service, with the statement that the machine had come down from engine trouble.

The Bristol Aeroplane Co. Ltd. have now received a telegram reading as follows:—

> Engine ran 4½ minutes without oil reason for failure. Stop. No reflection on engine.

From this the trouble would seem to be entirely due to an oil failure and reflects in no way whatever on the Jupiter engines in the machine.

ANOTHER AUSTRALIA-ENGLAND ATTEMPT.

A member of the New South Wales Aero Club, whose name is given as Andrew Cunningham, left Sydney on July 31 in an attempt to fly to England in a light aeroplane.

Mr. Cunningham arrived at Wyndham on Aug. 4 and hoped, if the weather was favourable, to start off for England on the following day. The flight is interesting, as Mr. Cunningham has been trained by, and is a member of, the Aero Club of New South Wales, and is flying a machine which has been built in Australia.

NO START.

An attempt by Mr. J. H. Mears to fly round the World in ten days was recently organised. Mr. Mears has twice previously held the record for World-circumnavigation, but his last record of 23 days was beaten by the *Graf Zeppelin*.

Mr. Mears, in a Lockheed Vega (400 h.p. Pratt and Whitney Wasp), left New York on the morning of Aug. 2 and arrived at Harbour Grace some eight hours later.

As weather reports were favourable, an attempt was made to take-off in the dark with the aid of flares. The machine was wrecked. Neither Mr. Mears nor his companion was hurt.

THE HUNTERS HUNTED.

An American friend writes as follows:—

The Hunter affair changed its complexion after I wrote you. When they piled up a good margin over the old St. Louis Robin mark every "chiseler" and "muscle man" in Chicago racket circles tried to "muscle in" by becoming one of the managers of the four Hunters.

I spent an afternoon at Sky Harbor two days before the end of the flight, and if all the backers, managers, assistant managers, advisors, counselors, publicity counselors, press directors, press agents and assorted what-nots had been laid end to end the line would have reached from there to somewhere else.

They all had delusions of grandeur and their demands were so outrageous that they really drove away some of the prospective profits. If the Hunter boys get out of the mess with a second-hand radio as a souvenir they will be doing well. One of the newspapers offered $2,500 for the boys' log, but the managers demanded $5,000. They still have the log.

The Hunter flight, by the way, was broadcast toward the end every fifteen minutes over local stations, every hour over two nation-wide hook-ups, and twice a day a radio ship went up and lowered a microphone into the cockpit so the boys could talk over the national hook-up of some 40 broadcasting stations.

As a radio stunt it was one of the best I have ever heard, and they did build up more nation-wide interest in flying than we have had since Lindy flew to Paris. It was a nut stunt, but joy-ride operators enjoyed the best business of their career, while Sky Harbor, an ex-aviation country club which went bankrupt and was in a receiver's hands, is reported to have collected more than $75,000 from the 50-cent parking fee for automobiles.

The old Stinson had been flown 30,000 miles in commercial transport, followed by more than 500 hours in two refueling flights, followed by eight months' intermittent private flying, and the Wright J-6 300 h.p. motor was used in a previous refueling flight of more than 300 hours, and the eight months' private flying before it made the new record flight.

To this another correspondent adds:—

Following are some interesting performance statistics regarding this flight:—

Distance traveled, 40,000 miles, *non-stop*.
Revolutions by crank-shaft, 52,000,000.
Each valve opened and closed 26,000,000 times.
Strokes made by each piston, 104,000,000, without a falter.
Each piston traveled 9,025 miles.
Revolutions by supercharger, 405,600,000.

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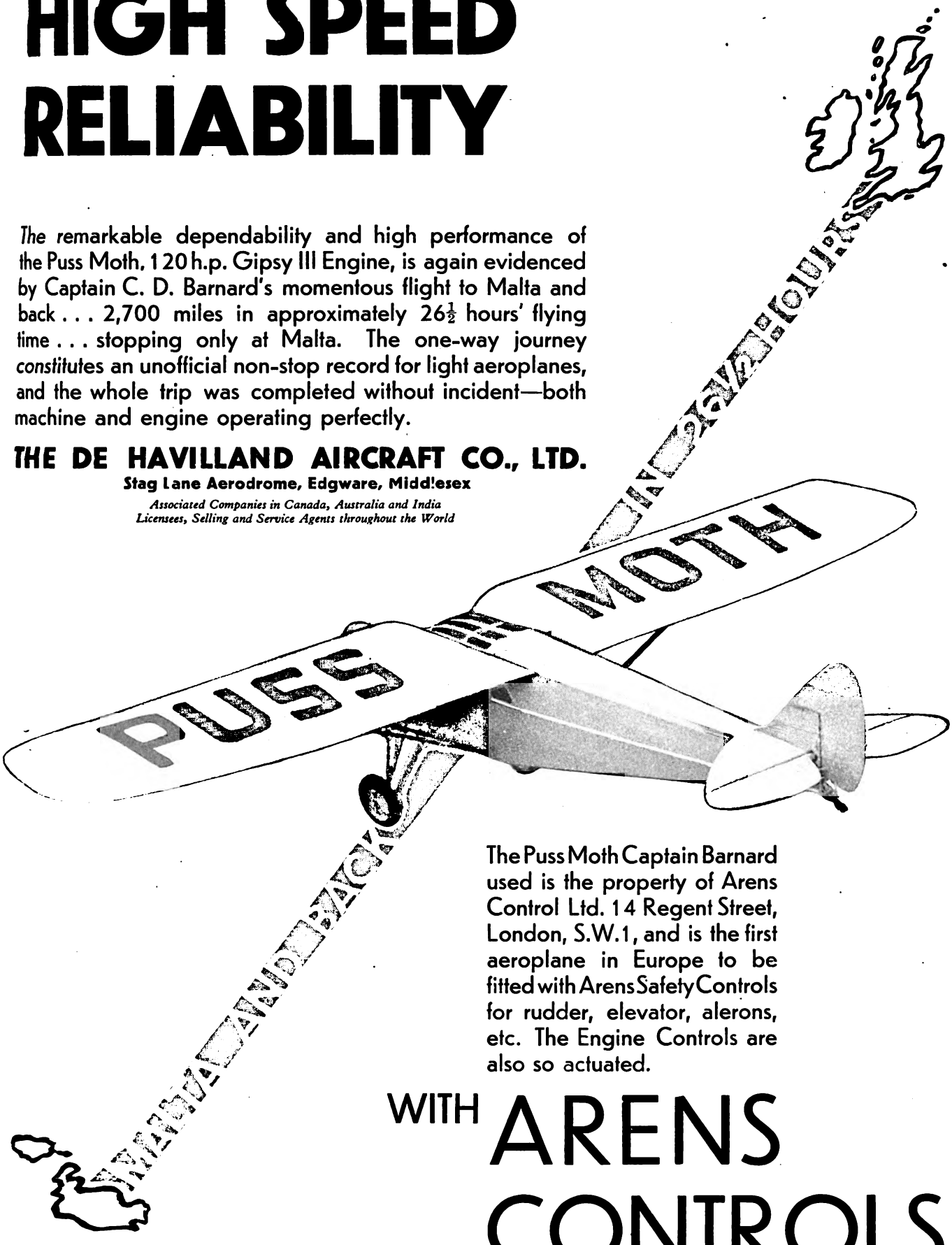
HIGH SPEED RELIABILITY

The remarkable dependability and high performance of the Puss Moth, 120 h.p. Gipsy III Engine, is again evidenced by Captain C. D. Barnard's momentous flight to Malta and back . . . 2,700 miles in approximately 26½ hours' flying time . . . stopping only at Malta. The one-way journey *constitutes* an unofficial non-stop record for light aeroplanes, and the whole trip was completed without incident—both machine and engine operating perfectly.

THE DE HAVILLAND AIRCRAFT CO., LTD.

Stag Lane Aerodrome, Edgware, Middlesex

Associated Companies in Canada, Australia and India
Licensees, Selling and Service Agents throughout the World



The Puss Moth Captain Barnard used is the property of Arens Control Ltd. 14 Regent Street, London, S.W.1, and is the first aeroplane in Europe to be fitted with Arens Safety Controls for rudder, elevator, alerons, etc. The Engine Controls are also so actuated.

WITH ARENS CONTROLS

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THE ROYAL AIR FORCE.

The London Gazette.

July 29.

ROYAL AIR FORCE.

GENERAL DUTIES BRANCH.—The following are granted temp. comns. as Flg. Offs. on being seconded for duty with the R.A.F. (July 15):—Lt. L. O. Welch (N. Stafford Regt.); Lt. L. S. Cundell (Lan. Fus.); Sec. Lt. J. S. Hindmarsh (R. Tank Corps).

The following Plt. Offs. are promoted to the rank of Flg. Off. (June 28):—C. R. Crow, W. S. Monroe.

Sq. Ldr. J. L. Vachell, M.C., is granted the acting rank of Wing Cdr. (unpaid) (July 30).

Group Capt. T. G. Hetherington, C.B.E., is placed on the half-pay list, Scale A (July 25); Wing Cdr. D. Harries, A.F.C., is placed on the half-pay list, Scale A, July 27 to Sept. 7, inclusive.

Flg. Off. W. M. Moore is placed on the retired list on account of ill-health (July 29); Flg. Off. G. V. T. Thomson is transferred to the Reserve, Class A (July 27); Flt. Lt. P. I. V. Rippon relinquishes his S.S. comn. on completion of service (July 18); Flg. Off. C. H. Schofield (Lt., The Welch Regt.) relinquishes his temp. comn. on return to Army duty (July 26). The S.S. comns. of the following Plt. Offs. on probation are terminated on cessation of duty:—W. R. Farley (July 9); R. C. Stuckes (July 26).

DENTAL BRANCH.—Wing Cdr. C. L. Colbran, L.D.S. (Lt.-Col. Army Dental Corps) is granted a perm. comn. in this rank (July 1); Capt. G. A. Ballantyne, D.F.C., L.D.S., R.C.S. (Army Dental Corps), is granted a perm. comn. as a Flt. Lt. (July 1).

The following are granted non-permanent comns. as Flt. Lts. (July 1):—Flt. Lt. R. G. J. Charlesworth, L.D.S. (temp. Capt., General List, Army, Dental Surgeon); Flt. Lt. H. I. Clapperton, L.D.S. (temp. Capt., General List, Army Dental Surgeon); Flg. Off. P. M. Margand, L.D.S. (temp. Lt., General List, Army, Dental Surgeon). F. B. Sumerling, B.Sc., is granted a non-permanent comn. as a Flg. Off. with effect from and with seniority of July 9.

RESERVE OF AIR FORCE OFFICERS.

GENERAL DUTIES BRANCH.—G. F. Phipps is granted a comn. in Class AA (ii.) as a Plt. Off. on probation (July 14).

The following Plt. Offs. on probation are confirmed in rank:—L. Swan (June 26); F. H. Peers (July 22); G. U. Hayns (July 24). Flg. Off. W. J. Brett is transferred from Class A to Class C (July 23); Flg. Off. E. I. C. Wyllie is transferred from Class AA (ii.) to Class C (Feb. 7).

The comns. of the following Plt. Offs. on probation are terminated on cessation of duty:—J. P. R. Oakes (July 2); P. R. Q. Henriques (July 12).

ACCOUNTANT BRANCH.—Flg. Off. J. C. Christian, M.C., relinquishes his comn. on completion of service (Sept. 5, 1929).

AUXILIARY AIR FORCE.

GENERAL DUTIES BRANCH.—No. 603 (CITY OF EDINBURGH) (BOMBER) SQUADRON.—The following Plt. Offs. to be Flg. Offs.:—A. Wallace (Mar. 26); A. M. Mitchell (Mar. 29).

Appointments.

Week ending August 4.

GENERAL DUTIES BRANCH.—Group Captain T. G. Hetherington, C.B.E., to Half-pay List, 25/7.

Wing Commanders J. Sowrey, A.F.C., to H.Q., A.D.G.B., for Engineer Staff Duties, 25/7. D. Harries, A.F.C., to Half-pay List, on completion of Senior Officers' Course, Sheerness, 27/7.

Squadron Leaders J. M. Robb, D.S.O., D.F.C., to Superintendent of R.A.F. Reserve, Hendon, 28/7. E. G. Hopcraft, D.S.C., to No. 3 F.T.S., Grantham, 28/7. L. M. Bailey, A.F.C., to Air Ministry (D.O.S.D.), 11/7.

Flight Lieutenants R. C. Wansbrough, to Special Duty List, 21/7. W. C. Yale, to H.Q., No. 1 Air Defence Group, 17/7. K. L. Harris, to R.A.F. Depot, Uxbridge, 29/7. H. M. Mellor, to R.A.F. Base, Gosport, 21/7. A. Lees, to H.A.D., Henlow, 1/8. G. N. Carroll, to R.A.F. Depot, Uxbridge, 20/7. C. W. Weedon, G. C. Shepherd and H. R. Bardon, to Cambridge University Air Squadron, 8/7.

Flying Officers R. Kellett, to H.A.D., Henlow, 4/7. C. E. Eckersley-Maslin, to R.A.F. Depot, Uxbridge, 5/7. E. L. S. Ward, to H.A.D., Henlow, 5/7. P. F. G. Bradley, to H.A.D., Henlow, 31/7. L. O. Welch, to No. 2 F.T.S., Digby, on appointment to a temp. comn., 15/7. J. Parsons, to Station H.Q., Duxford, 24/7. G. E. F. Proctor, to School of Photography, S. Farnborough, 12/7. J. K. Flower, to No. 47 Sqdn., Khartum, 17/7. N. X. Sheldrick, to No. 2 Arm. Car Co., Palestine, 24/7.

Pilot Officers H. R. Clay, to No. 70 Sqdn., 'Iraq, 11/7. R. W. H. Rayneau, to R.A.F. Depot, Uxbridge, 17/7. W. N. H. Banks, to No. 47 Sqdn., Khartum, 17/7. R. J. Parkhouse, to No. 100 Sqdn., Bicester, 14/7. E. G. B. Kiddle, to R.A.F. Depot, Uxbridge, 22/7. E. F. J. L'Estrange, No. 4 Sqdn., S. Farnborough, 18/7. The undermentioned are all posted to No. 4 F.T.S., Egypt, with effect from 24/7: R. Hanson, H. J. L. Hawkins, A. H. Hole, T. A. Jefferson, A. F. McKenna, D. H. Marsack, J. W. Martin, F. G. Mason, C. L. Monckton, M. A. Payn, H. N. G. Ramsbottom-Isherwood, I. G. Ross, C. B. Smith, E. C. Smith-Ross, C. P. Villiers.

STORES BRANCH.—Flying Officer J. E. R. Sowman, to R.A.F. Depot, Uxbridge, 7/7.

Pilot Officers W. A. Lee, to H.Q., R.A.F., Cranwell, 1/8. L. Llewellyn, to No. 2 F.T.S., Digby, 1/8. E. N. Lowe, to Station H.Q., North Weald, 1/8. J. W. C. Revill, to Station H.Q., Andover, 1/8. G. C. Allen, to H.Q., R.A.F., Halton, 1/8.

The Royal Flight to Belgium.

H.R.H. the Prince of Wales flew to Belgium on July 29 in a Fairey III F. of No. 24 (Communication) Squadron piloted by Sq. Ldr. D. S. Don, M.V.O. He was escorted by two other machines of the Squadron. The journey was made in bad weather but only took two hours.

His Royal Highness was received by Their Majesties the King and Queen of the Belgians at the Evère aerodrome near Brussels. Those in attendance included Group Capt. R. J. Bone, C.B.E., D.S.O., British Air Attaché in Paris.

On July 31 His Royal Highness flew to Liège, travelling from the Evère aerodrome to Ans in 17 minutes. After visiting the Liège Exhibition he returned to Ans and flew from there to the Berck aerodrome near Le Touquet.

The R.A.F. in India.

A *Reuter* telegram from Peshawar dated July 30 states:—

Over seventy aeroplanes belonging to the Royal Air Force have been engaged in numerous air actions on the frontier, dealing with turbulent tribes who were giving trouble. The damage and casualties caused by the R.A.F. bombs will probably never be known, but it is certain that the air operations have played a remarkable part in subduing tribal disturbances and preventing fresh outbreaks.

LIAISON.—Cadets of the Officers' Training Corps in camp near Aldershot receiving instruction in army co-operation from No. 13 (Army co-operation) Squadron at Odiham. Some of them were taken for flights in the Armstrong Whitworth Atlas (Jaguar) machines of the Squadron.

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Changes at the Air Ministry.

Unofficial but reliable statements make known the fact that Air Marshal Sir John Frederick Andrews Higgins, K.C.B., K.B.E., D.S.O., A.F.C., Air Member for Supply and Research in the Air Council, has resigned from the Royal Air Force to join the Aircraft Industry, and that his resignation will take effect from Sept. 1 this year.

His place is to be taken by Air Vice-Marshal Hugh Caswall Tremenheere Dowding, C.B., C.M.G., *p.s.c.*, who at present commands the Fighting Area, Air Defence, Great Britain.

The name of the firm which has been so fortunate as to secure the services of Sir John Higgins is not yet made known, but naturally an official announcement will be made in due course. Sir John Higgins will be a great loss to the R.A.F., but his outstanding ability, his technical knowledge, and his great experience will be a tower of strength to the Aircraft Industry.

Air Vice-Marshal Dowding, like Sir John Higgins, is one of the pioneers of Service Aviation, and no better appointment to this important position could be imagined.

Medical Officers in the R.A.F.

In the House of Commons on July 29, in reply to a question by Dr. Davies, the Under-Secretary of State for Air said that there was still some difficulty in obtaining the number of medical officers required for the Royal Air Force. The question was one which was constantly engaging the attention of the medical authorities at the Air Ministry and of the Air Council.

The School of Technical Training, Apprentices.

The Passing-Out Inspection of the Aircraft Apprentices of the School of Technical Training (Apprentices), Halton, was held by Air Vice-Marshal T. I. Webb-Bowen, C.B., C.M.G., at Halton on July 29. The 16th (passing-out) Entry were inspected on the Maitland Barracks Parade Ground and then marched past. Air Vice-Marshal Webb-Bowen then inspected the Maitland Barracks and selected work done by the 16th Entry in the workshops.

The Report read by the Commandant, Air Commodore I. M. Bonham-Carter, C.B., O.B.E., at the prize-giving contained the following points:—

Of the Entry now passing-out 232 had been trained as Fitters, Aero-engine, 176 as Metal Riggers, 7 as Fitters Armourer, and 10 as Coppersmith and Sheet Metal Workers.

As a result of the final examination 13.3% of the Apprentices had been classified as Leading Aircraftmen, 69.1% had been classified as Aircraftmen 1st class, and 17.5% had been classified as Aircraftmen 2nd class. None had failed.

The standard of discipline of the Entry had been excellent and the technical training had been accomplished with very satisfactory results. The training of the Fitters Aero-engine had been on Napier Lion, Siddeley Jaguar and Bristol Jupiter engines. This Entry was the first to be trained in the trade of Metal Rigger and despite the difficulties incident to a new trade they had reached a high standard of efficiency. The standard of proficiency in armament subjects had been very good and the Coppersmiths had shown commendable keenness.

The Educational training of the Entry was to be commended generally on a very satisfactory uniformity and it was gratifying to find that only just under 7% had failed to qualify educationally as Leading Aircraftmen.

Physical Training had been somewhat handicapped by lack of sufficient instructors, but the general standard was above the average. There were two Wakefield Champion boxers among the Entry. In Cross-Country Athletics the Entry had won all the Barrington-Kennett events.

The general health of the Entry compared favourably with previous entries. The average increase in height had been 2 1-3 inches and the average increase in weight 19½ pounds.

Cadetships had been offered to AA. T. G. L. Gale, AA. R. A. C. Carter, and AA. S. J. Marchbank.

The Sir Charles Wakefield Scholarship had been awarded to AA. T. G. L. Gale.

The Air Ministry Prizes had been awarded as follows:—Grand Aggregate and Prize for Educational Subjects to AA. A. E. Grover. The Fitter Aero-engine First Prize to AA. T. C. Hey, Second Prize to AA. L. Fox. The Metal Rigger First Prize to AA. T. Dawson, Second Prize to AA. E. S. Street. The Coppersmith and Fitter Armourer (combined) Prize to AA. C. S. Howes.

The Elliott Memorial Prize had been won by AA. R. A. C. Carter.

The Electrical and Wireless School.

The Passing-Out Inspection of the Aircraft Apprentices of the Electrical and Wireless School, Cranwell, was held by Air Vice-Marshal R. H. Clark-Hall, C.M.G., D.S.O., at Cranwell on July 29. An inspection was first held of the Technical and Education Sections followed by a display by the Physical Training Squads. Air Vice-Marshal Clark Hall was then received with the Air Salute and inspected all the Aircraft Apprentices and Airmen under training on parade.

The Commandant's Report which was read at the Prize-giving contained the following points:—

Altogether there were 114 Aircraft Apprentices under training as wireless operator mechanics and 132 as electricians, exclusive of the present passing-out entry. The general standard of work had been up to the average of past entries and certain individual members of the Entry had made exceptional progress in the Workshops. Owing to the Wireless Operator Mechanics having attained proficiency in Morse at a comparatively early stage of their training it had been found possible to employ a considerable number of hours in keeping "Listening Watch" on Service Frequencies.

The Entry had done very well in both branches of educational work and three members had passed with credit.

The general health of the apprentices had been very satisfactory and there had been no cases of infectious diseases.

All Apprentices had been in constant athletic training throughout the term competing for the "Higgins" shield which was being com-

ALIGNMENT.—A typical view during a parade of the Aircraft Apprentices at No. 1 School of Technical Training, Halton.

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("Aeroplane" photograph.)

EXTRACT OF LETTER FROM MESSRS. BLACKBURN AEROPLANE & MOTOR CO., LTD. (10/5/30).

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peted for by flights. A large number of inter-flight and inter-squadron games had been played.

Of the present Entry 10 had passed out as Leading Aircraftmen, 33 as Aircraftmen, 1st class, and 12 as Aircraftmen, 2nd class. There had been no failures.

The Prize offered by the Air Ministry for the Apprentice who obtained the highest aggregate marks in all subjects had been won by AA. J. Friend, who had also won the Air Ministry Prize for Educational Subjects.

The Prize offered by the Air Ministry for the Apprentice who obtained the highest marks in technical subjects had been won by AA. A. Ward.

The Abomination in Berkshire.

In the House of Commons on July 30, in reply to a question by Major Glyn, the Under-Secretary of State for Air said that the War Office was invariably consulted whenever it appeared that War Department land could be utilised rather than purchasing land from an unwilling seller. In one or two cases land had been made available for bombing ranges in this way. Other Government Departments would similarly be consulted if they happened to have suitable land.

Replying to a further question by Major Glyn and to questions by Brig.-Gen. Clifton Brown and Mr. Ede, Mr. Montague said that the Secretary of State for Air was prepared to send representatives to a meeting of representatives of the trainers and owners of racehorses and other persons engaged in the care and provision of forage for these racehorses whose training quarters would have to be moved from the district if this project were persisted in.

He would like to point out, however, in view of the widespread misconception which seemed to prevail, that all that had happened to date was that a preliminary and provisional reconnaissance had been made of this, as of other, areas, and that in any event the proposal was one for the use, not of live, but of practice, bombs, which merely made a puff of smoke and could be heard only a short distance.

The small effect of these practice bombs, which would do no damage to a person standing five yards from where they fell, and only make an indentation in the ground some three inches in diameter, could be demonstrated.

He did not know that he was called upon to express an opinion on the point of whether the dropping of these bombs from a height of 7,000 feet would disturb racehorses, but he would insist on the fact that the whole plan was dependent upon future consideration. He could give definite assurance that the Government would not use compulsory powers to acquire the land against the wishes of everybody in the district until Parliament again met.

Replying to another question by Major Glyn, Mr. Montague said that there were in Great Britain five bombing ranges where high explosive bombs were dropped. Practice bombs, which was to say bombs which only emitted smoke, were dropped also at these ranges, and there were, in addition, four ranges at which only practice bombs were dropped. The danger area varied with the height at which practice was carried out and the type of bomb used. Most of the ranges were used throughout the year, but practice was mainly carried out during the summer months. No bombing took place at week ends or on public holidays. Land in military training areas would be used if it were suitable and available within the area.

Mr. Muggeridge suggested the suitability of slum areas after evacuation as bombing centres.

Mr. Ede pointed out that there were five public rights of way across the area proposed to be used and Mr. Montague assured him that if it were decided to establish the range, the existence of any public rights of way and the measures to be taken to obviate danger and inconvenience to persons using them would be among the matters to be fully and carefully considered.

[If the objective of all this bother is to preserve the beauty of the Berkshire Downs, the sooner the area is closed to the pic-nicing public the better. Any well-bred racehorse ought to prefer a few smoke bombs to a few thousand paper bags. And anyhow, why not raise a row about the use of the various Downs on Salisbury Plain as artillery ranges by the Army, and the Solent as a practice area by warships which make a disconcerting wash.—Ed.]

A Photograph Wanted.

The Officers' Mess at Felixstowe is making a collection of photographs of all the officers who at one time or another have commanded that station. A photograph of the late Lieut.-Col. Charles Erskine Risk, D.S.O., is wanted.

If any reader of The Aeroplane has a photograph of this officer, will he or she be so good as to lend it for reproduction? Photographs should be sent to Flight-Lieut. D. G. Fleming, Secretary, the Officers' Mess, Marine Aircraft Experimental Establishment, Royal Air Force, Felixstowe.

The Clarkson Trophy.

The Inter-Flight Aerobatic Competition for the Clarkson Trophy was held at the Central Flying School, Wittering, on July 31. For this Trophy, which was presented by Flt. Lt. C. Clarkson, R.A.F.O., formerly an instructor at the C.F.S., and is competed for at the end of each course, each Flight at the C.F.S. may enter a team of two pupils.

The competition is in three parts:—(i) Compulsory aerobatics, individually; (ii) Optional aerobatics, either as a pair or individually; and (iii) Landing over a tape from 1,500 feet. Dangerous flying disqualifies the Flight.

The Trophy, a photograph of which appeared in The Aeroplane of April 23, 1930, was won on this occasion by "A" Flight, Flg. Off. D. Menzies and Flg. Off. S. O. Bufton.

The Judges were Sq. Ldr. G. H. Martingell, A.F.C., Flt. Lt. D. A. Boyle, and Flt. Lt. C. Clarkson, R.A.F.O.

The Compleat Tourists.

The annual tour of Belgium by a party of Aircraft Apprentices from Halton has been made notable this year by a gracious letter of welcome which has been sent to them by His Majesty the King of the Belgians. The letter reads:—

En souvenir de la camaraderie qui unit durant la grande guerre les armées britanniques et belges, je souhaite la bienvenue dans notre pays aux jeunes apprentis aviateurs de Halton.—Albert.

This is reproduced as a frontispiece to the handbook of the Halton Belgian Tour. This unique souvenir is hand-printed by the party for the party, and one of the very few spare copies has been kindly presented to The Aeroplane. It contains historical notes about the places to be visited and a number of valuable hints about the customs of the country. The programme of each day of the tour is given with useful comments.

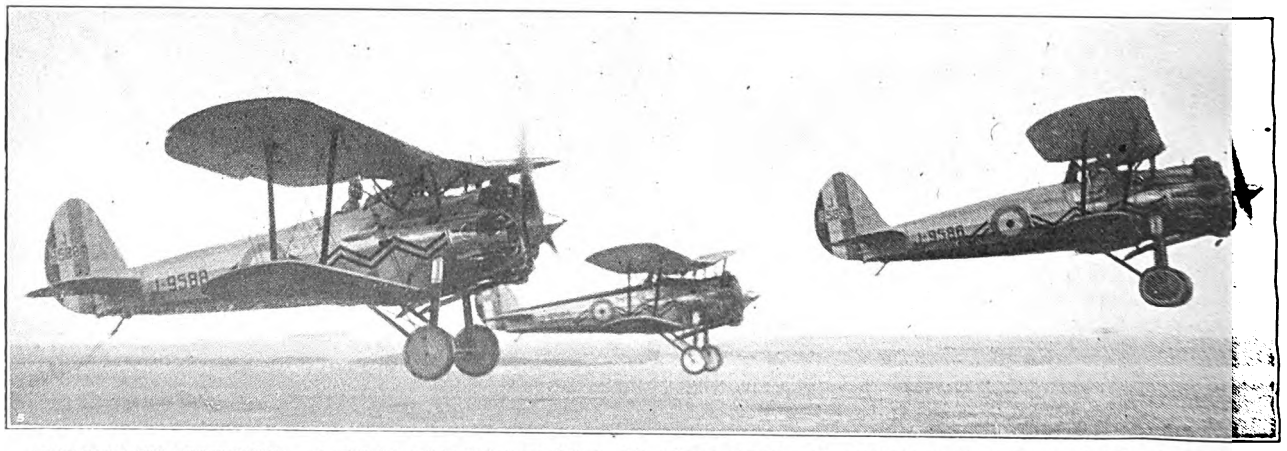
There is a short and useful vocabulary of the French language, a map of the tour, and a number of delightful original illustrations. One doubts whether such a combination of high art and practical philosophy could have been produced anywhere other than at Halton.

Inter-Services Athletics.

The Inter-Services Athletic Championship Meeting was held at Portsmouth on July 30. The Army won the Championship with 25 points, the Royal Navy and Royal Marines were second with 18 points and the R.A.F. third with 17 points. The results in detail were:—

Half-mile (4/220) *Relay*.—R. and R.M. (Lt. Wood, Lt. Magee, Lt.-Cdr. Stevens, and Sub.-Lt. Michell), 1; Army, 2; R.A.F., 3. Won by two yards. Time, 1 min. 31 4-5 sec. (new record).

Two Miles Relay (4/880).—Army (Lt. J. A. P. Graham, Sjt. J. H. Owens, Sec. Lt. G. L. Rampling, and Sec. Lt. R. F. Walter), 1; R.A.F.,



FLIGHT FORMATION.—A Flight of Bristol Bulldogs (Jupiter) of No. 17 (Fighter) Squadron, R.A.F., leaving their aerodrome at Upavon, Wiltshire, in bad weather.—("*Aeroplane*" *photograph.*)

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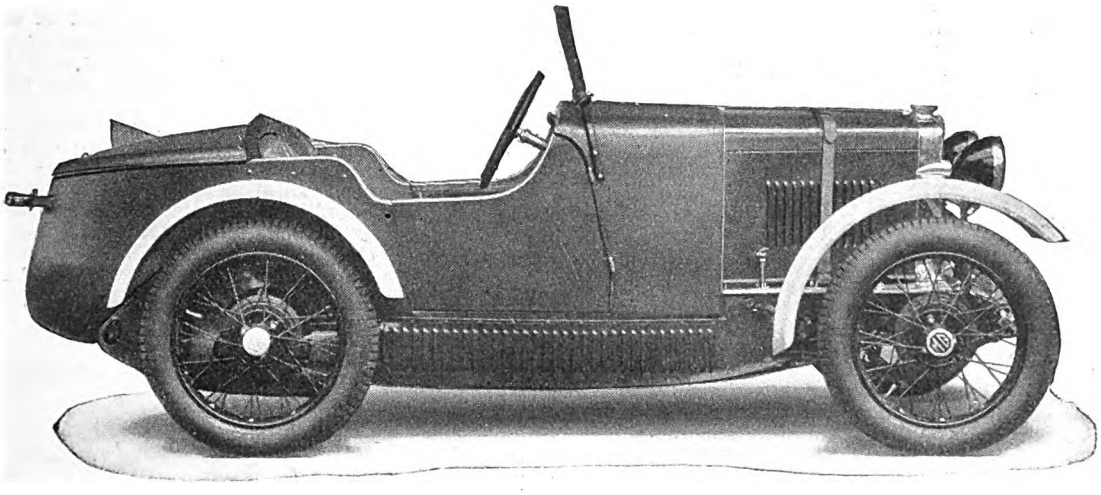
Vide Page 199 "The Autocar," July 25th, 1930.



The M.G. Midget Sports

which finished fifth in the 1100 c.c. class

in the

Belgian "Grand Prix des 24 Heures"

Winners of the Team Prize in the J.C.C. Double Twelve Hour Race 1930.

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2; R.N. and R.M., 3. Won easily. Time. 8 min. 5 3-5 sec.

Long Jump.—R.N. and R.M. (Leading Seaman Tillman, 22 ft. 10½ in., and Lt. Neame 21 ft. 4½ in.), 44 ft. 3 in. (new record), 1; Army, 44 ft. 0½ in., 2; R.A.F., 41 ft. 9½ in., 3.

Three Miles Team Race.—Army, 1, 2, 4=7 points, 1; R.A.F., 3, 6, 7=16 points, 2; R.N. and R.M., 5, 8, 9=22 points, 3. Sjt. Sutherland (Army) first home in 15 min. 6 1-5 sec.

Putting the Weight.—Army (Lc./Cpl. Strang 39 ft. 6 in., and Capt. J. A. Ross 37 ft. 8½ in), 77 ft. 2½ in., 1; R.A.F., 74 ft. 5½ in., 2; R.N. and R.M., 73 ft. 3½ in., 3.

480 *Yards* (4/120) *Hurdles Relay.*—R.N. and R.M. (Lt. Neame, Sub.-Lt. Michell, Sub.-Lt. Lane and Lt. Hicks), 1; Army, 2; R.A.F., 3. Won by inches. Time, 1 min. 5 2-5 sec.

480 *Yards* (4/110) *Relay.*—Army (Cpl. S. H. Beaumont, Gdsmn. T. Usher, Sec. Lt. W. S. Beamish and Lc./Cpl. A. Pell), 1; R.N. and R.M., 2; R.A.F., 3. Won by two yards. Time, 44 4-5 sec.

One Mile Relay (4/440).—Army (Lt. T. Stallard, Lt. the Hon. C. B. A. Bernard, Lt. G. Peddie, and Sec. Lt. G. L. Rampling), 1; R.N. and R.M., 2; R.A.F., 3. Won by four yards. Time, 3 min. 36 4-5 sec. (new record).

One Mile Team Race.—R.A.F., 1, 2, 6=9 points, 1; Army, 3, 4, 5=12 points, 2; R.N. and R.M., 7, 8, 9=24 points, 3. L-AC. Thomas and AA. Brown finished together in 4 min. 27 2-5 sec.

High Jump.—R.A.F. (Plt. Off. H. Simmons 5 ft. 10½ in., and Flg. Off. F. E. Nuttall 5 ft. 8½ in.), 11 ft. 7 in., 1; Army, 11 ft. 5 in., 2; R.N. and R.M., 11 ft. 3 in., 3.

The R.A.F. Lawn Tennis Championships.

The R.A.F. Lawn Tennis Championships were played at Wimbledon on July 21, 22, 23 and 24. The Singles Championship was again won by Wing Cdr. H. J. F. Hunter, who beat Wing Cdr. R. E. Saul in the final. The Doubles Championship was won by Wing Cdr. Hunter and Wing Cdr. Saul. The Inter-Station Doubles was won by Wing Cdr. Hunter and Flg. Off. L. V. Hirst (Halton). The Plate Singles was won by Flg. Off. F. G. Downing.

PARACHUTE.

[*Parachute.* Charles J. V. Murphy. 275 pp. Many Illustrations. G. P. Putnam's Sons. Supplied by The Aeroplane Book Dept., Cannon House, Pilgrim Street, E.C.4. 11s. post free.]

The insularity and the ignorance of the average American is never shown to a better advantage than in their works of a semi-technical and historical character, and the volume under review is no exception to this statement. Mr. Murphy has set out to write a book giving at once the history, the technical characteristics and the performance of the parachute from the time of its inception until the present day, and although he has succeeded in writing an interesting and, at times, informative work, it is, nevertheless, a most irritating one. For some reason or other, writers on aeronautical historical subjects rarely take the trouble to verify their facts. For example, Mr. Murphy states that "whether the parachute's true historical origin is to be considered an accident or a deliberate invention to meet a given condition, is a problem that only a court of law could decide," but this is sheer nonsense. So also is the account which he gives of the invention of the parachute.

In his *Codex Atlanticus* Leonardo da Vinci gave in 1514 a description and sketches of a parachute. Eighty-one years later the scheme was elaborated by Fausto Veranzio. For the next two hundred years the idea of the parachute was not developed any further, but in 1779 Joseph de Montgolfier made "a sort of parasol" to which he attached a basket containing an unfortunate sheep, and the whole was released from a high tower at Avignon—incidentally the experiment proved a success. After this date there were several suggestions with respect to the use of a parachute, but the first man to descend safely from a balloon by means of a parachute was, undoubtedly, André Jacques-Garnerin, which he did in Paris on Oct. 22, 1797.

This is not the place to go into the history of the parachute, but really some of Mr. Murphy's more obvious blunders should be corrected. The spirit of patriotism is one to be encouraged, but not to the detriment of the purer spirit of truth, and while the reviewer has no desire to disparage the excellent work done by skilled-acrobats-turned-parachutists of American birth, nevertheless the blunt fact remains that the parachute is of European origin, and that the vast majority of the research connected with its development has been undertaken by Englishmen, Frenchmen and Germans, although the recent work done in the United States of America has been most valuable, and to-day the standard parachutes are of American design.

The uninitiated might gather from Mr. Murphy's work that the use of the parachute as a life-saving device when applied to aeroplanes has only been developed since 1919. Nowhere in the book is any mention made of the pioneer work conducted by the Spencer brothers, and, above all, by Richard Everard Calthrop, with whose "Guardian Angel" parachutes drops were made from B.E.2cs in 1915.

To the latter, now unhappily dead, must be awarded the undoubted distinction of being the first man who attacked the problems connected with parachute design in a scientific manner, and most of the discoveries which have been recently acclaimed as being highly original did, without question, emanate from his fertile brain. Calthrop was certainly a very egotistical and truly trying person, and in this way made many enemies, but any man who, as he did, sacrificed a flourishing business, and literally died in a garret, all because he felt it was his mission to save lives in the air, should be remembered with gratitude at least.

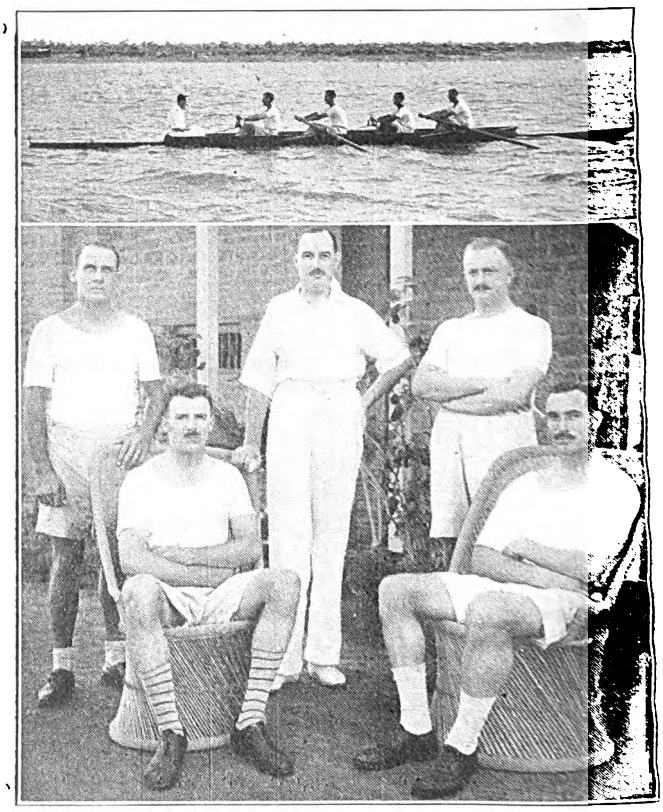
Mr. Murphy would have been surer of a more favourable hearing if he had at least taken the trouble to investigate the work done by this pioneer.

The author does not consider it of sufficient importance to give to us anything of the theory of the parachute, and proceeds to give quite an interesting account of the development of the "pack" type, and although he describes the advantages which this has over the "anchored" type he curiously fails to mention the chief danger of the latter, namely that if the machine be falling as fast as the man, then the parachute will not be dragged out of its container. Mr. Murphy stresses, and rightly so, the importance of "positive opening," but fails to explain explicitly how the various types of "pack" parachutes secure this required quality.

He is a lover of the sensational, and he likes to tell us that in moments of emergency (in particular instances) the parachutes opened either with "a crack" or "a sharp report," which shows that he fails to realise that the parachute has opened under dangerous conditions. Perhaps if he had seen, as the present reviewer has, six parachutes burst in the air in one day through such causes, he would not dilate upon it. He gives no account of the problems connected with the design of quick releases or of harnesses, and like many others before him, seems to think there is a future for a parachute which will, in case of emergency, support the whole machine.

The Royal Air Force and the United States Air Services owe a great deal to the work of Mr. Leslie Irvin, and of Mr. Russell, but the reviewer only wishes that Mr. Murphy could have been a little more temperate when describing the results achieved by them, for he conveys the impression that the majority of American aeroplanes either break in the air, are chronically liable to spin or catch fire,—in short that there is *no* safety except with the parachute.—

C. F. S. G.



A KARACHI CREW.—The Aircraft Depot Crew of the Karachi Boat Club. This crew holds all six of the Club's Challenge Cups. Left to right, standing, Flg. M.C. (Cox), Flg. Off. W. G. S. Wood (Bow), sitting Flg. Off. C. E. Eckersley-Martin (Stroke), Flg. Off. Off. F. J. Parker (2), Flg. Off. F. B. Ludlow, O.B.E., C. L. Gilbert (3). The Challenge Cups held by them are The R.A.F. Cup 1929, the Harbour Cup 1930, the Humphrey Cup 1930, the York and Lancaster Cup 1929, the Boyce-Coombe Cup 1930, and the Hart Davis Cup.

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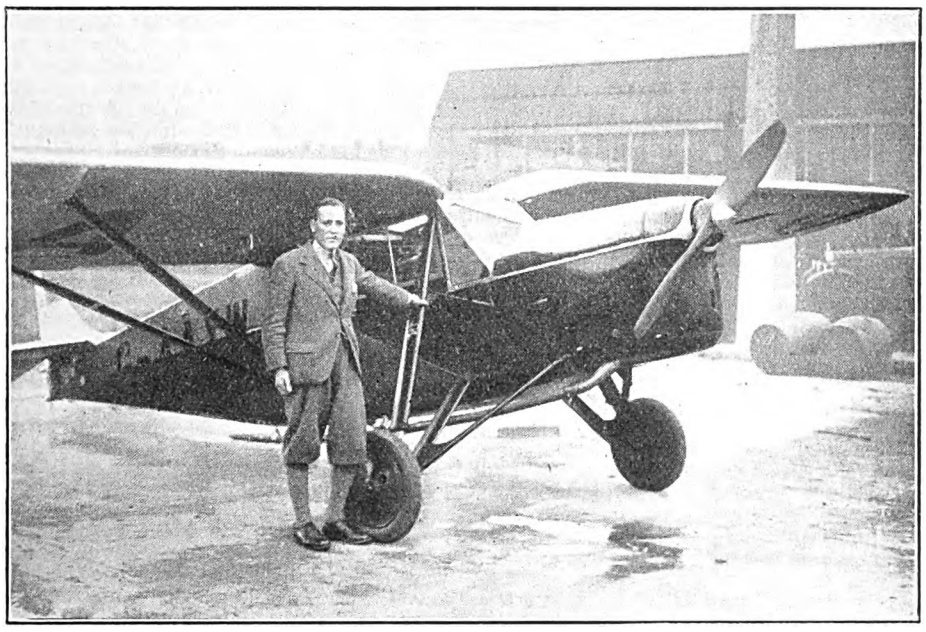

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THE CHALLENGE DE TOURISME INTERNATIONAL.—III.

THE ARRIVAL ON JULY 27.

By Walter Kleffel.

In stormy and rainy weather, there started 8 days ago the European fliers; hardly any of the large commercial aircraft equipped with all the instruments of a modern technique, has to fly in such weather. With an overcast sky, through which the sun did, however, shine a few times, the first fliers had to land again on the Tempelhof Aerodrome in Berlin. But the sky apparently wanted to make good at least part what it had lost in the last week, when it put to so severe a test the fliers of the 1930 International Round-Flight over the Pyrenees, over the Gulf of Lions, through the Alps and over Poland and East Prussia, that sometimes the whole flight had to be stopped and the pilots were unwillingly condemned to a long wait.

To-day (Sunday) Berlin seemed likely to enjoy some sunshine, and the Tempelhofer Feld was quite gay with the Hall and Buildings decorated with colours of the many nationalities. No wonder that the population of Berlin found themselves there to give a hearty welcome.

The German, and particularly the Berliner, is air-minded and a sportsman through and through, fond of high performances and of expressing his admiration. He has been greatly impressed by the trio of Butler, Broad and Thorn, of whom the last one in particular is well known here and well liked,—one has not forgotten yet his stunt flying which he did one Meeting Day in Tempelhof outside the programme. It was naturally all the more interesting because there were also German fliers in the struggle with English colleagues and friends.

A dark note was to be felt indeed to-day. The news that our friend Erich Offermann had died the day before at Lyon a flier's death was like lightning from the quiet sky, and the German fliers with their many foreign acquaintances in Tempelhof thought sorrowfully of the man who for more than twenty years had been devoted to aviation and had taken a decisive part in the development of German aviation. Who would deny them this sadness even at the hour when everybody was pleased to greet here again the first aviator of Europe, who had covered 7,500 kms. in a small sports aeroplane with a surprising safety and with a regularity equal to clockwork, thus proving that even the light aeroplanes are quite suitable and reliable as general purpose machines for touring traffic.

The Berliners were also sad about the mishap of Butler, who was for so long the leader of the European Tour, and about whom they had read in the newspapers, heard on the wireless, how beautifully he did things and how keenly he flew day after day the prescribed stages. They saw in him a clever and experienced pilot and wished him wholeheartedly distinction and honour, in spite of the adverse luck of breaking his airscrew in Poland the day before the last. One heard many sincere expressions of regret by German aviators extended to the English pilots.

But there was the joy of seeing that international aviation has indeed achieved a great and tangible success. The optimists were right in taking this opportunity to show how wrong are their opponents who think that aviation is not quite so developed that good use can be made of it.

Thus the Tempelhofer Feld was animated with a gay spirit and we waited with impatience the news from the last landing place, Danzig. The large Siemens-Schuckert loudspeakers, which eight days before had given such good reports, was also to-day particularly diligent, and if sometimes there was nothing to report, then they played gay music, in which the public joined,—through which the airport saved a lot of money for an orchestra. The intervals were occupied with stunt flying.

Then suddenly the first machine came out of the sky. Numberless field-glasses were directed to the horizon in search of the small machine, and everybody wanted to ascertain who the flyer was. The loud-speaker was, however, faster, and proclaimed:—"Ladies and Gentlemen, the first European fliers, Broad and Butler, have arrived over Tempelhof and completed the Rundflug over and round Europe."

Amid the acclamations of thousands the lucky pilots glided down to land, to be received in the friendly arms of the International Sports-Committee. Journalists sprang forward, camera-men and film-operators hastened through, and before the pilots were able to go into the shed they subjected them to the cross-fire of their cameras and the stormy interrogation of the press.

Quite close to one another, as during the whole flight, these wonderful pilots completed the flight round Europe, and were happy to be again "at home" and going cheerfully through the various formalities, the official welcome, the inspection of the instruments, the formalities of passports and customs,—which are now once more necessary in our Continent until perhaps the United States of Europe arrive.

And then Broad could not stand the camera-men any further and declared emphatically that they had had enough of the photographs and must be finished with it. He wanted a glass of refreshing wine and some sandwiches, the first meal of that day, in which he flew from Warsaw over Koenigsberg and Danzig. And then he returned with his old and new friends to await the arrival of the others whom he had together with Butler left at Warsaw.

Then there came Thorn, and Morzik followed by Dr. Pasewaldt, Finat, Andrews and the Archduke von Habsburg-Bourbon, all of whom were received in the same hearty manner. Nine fliers who fortunately had been able to stand the test.

What the Pilots Said.

All pilots declared immediately after they landed that this flight round Europe exacted the greatest efforts from the men and the machines. The whole flight had to be made through the worst sort of weather, and their experience over the Madrid—Saragossa stage, with three storms in Spain and in the South of France had been extremely trying. Even the flight to Munich had been anything but pleasant, and visibility only improved shortly before reaching the Bavarian capital.

Even if the group of fliers at the head of the flight had been lucky in flying over the Pyrenees and were in general satisfied with the weather through Spain, the bad weather was experienced later on. The bad weather seemed to travel with the pilots who landed to-day in Berlin. It was particularly unpleasant again between Vienna and Prague. At the latter place they did not think at first they would be able to start for Breslau, and took advantage of a favourable wind, which, however, carried a storm at its back, and unexpectedly quickly too.

The flight from Breslau to Posen, as Broad said, and as all the other pilots confirmed, must have been the worst of all. The weather reports were not reliable, when they referred to a visibility of 4 km. and a cloud height of 200 m. Broad had seen absolutely nothing and the clouds were as low as the tops of the trees, so that it was a flight of life and death, till he was able to land at Posen, with better luck than Butler, whose machine made a head-stand on the soaked ground.

THE BRITISH LEADER.—Mr. Broad's Moth (Gipsy) in the Folding Test.

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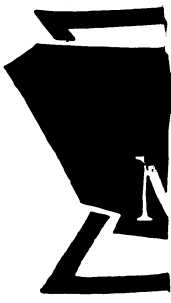

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MOTH

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LIABILITY

STAG LANE AERO-DROME, EDGWARE, M'SEX.

Telegrams - - Havilland, Phone, Edgware

SERVICE AGENTS—THROUGHOUT THE WORLD

S 25

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Broad and Thorn repeatedly said "terrible," and also Poss only used that word. He told us that he felt as if at a boxing match in which he was getting every time the k.o. blow,—and the flight of the last few days was still in his bones. The worst lap for him had been over the Pyrenees, where he had to fly between two layers of clouds, and there was no possibilities of landing.

Fritz Morzik, the victor of last year, was naturally taken by storm after his landing. As the defender of the Wander Prize, one would like to hear from him the chances of winning. Morzik is careful and reflects beforehand. "The end of flying itself is not sufficient. The most severe test, the fuel consumption, remains as it was before. Here the English have great prospects. Their engines are constructed to consume little. Their longer experience precisely in this realm will perhaps give them the lead."

Such a flight over ten countries presents many difficulties, particularly with regard to direction-finding and the choice of the best airways. Not always is the shortest way the safest or the quickest. As a whole the pilots had no difficulties, except with weather, which, of course, for so experienced long-distance pilots, is not to be wondered at.

The Spanish stages, even in good weather, are fairly unpleasant, precisely on account of the absence of emergency flying grounds. The Spanish military pilots never fly over a direct course from Madrid to Seville, but they make a big turn, where the country is more suitable for emergency landing and there are roads and railways, so that one is not quite separated from the rest of the World. The light aeroplanes had to fly over the shortest route on account of their limited supply of fuel.

The organisation of the Madrid Airport was, under the circumstances, good. The personnel were very kind and ready to help and the officers attended to the foreign pilots most willingly, and to their equipment.

All the pilots complained of the bad weather and praised the organisation, which, as Broad and Thorn declared, might have been worst of all in England, and, as Poss said, in Poland things went on beautifully,—there everybody was at home and every wish was granted. Also in Switzerland and in France, everything was all right.

Broad and Butler greatly praised their machines and engines, which worked so irreproachably, and now at the end of the flight were working so well that they could do it all over again. Also the Spanish Archduke Antoine of Habsburg-Bourbon, who was also flying a Moth, praised his engine very much, although he regretted that it was a bit slower than Broad's and Butler's machines.

Also the German pilots, who were using the new Argus engine, were very satisfied with it, and one must say that there must be something extraordinary about this engine to have worked as it did when used for the first time in a competition. It would seem that at last Germany has also a useful engine for light aircraft. In any case, they may be satisfied with the results already achieved.

We asked in conclusion all the pilots of the Europa Flight for their opinion as to the justification for the "neutralisation" at Pau, and also here there was a welcome unanimity. They all declared to us that for those fliers who had reached Pau at the same time as the leading group, the allowance for extended arrival time in Berlin was not justified, and that they would have been able to cross the Pyrenees.

The decision of the sports committee must therefore be awaited, also with regard to the protest entered by Butler.

ERICH OFFERMANN.

By the death of Erich Offermann, who met with a fatal accident at Lyon, German aviation loses one of its oldest pioneers, for he devoted himself to flying at a time when the majority of people thought that aviation was impossible and a crime against God. Inspired by the work of Otto Lilienthal he built for himself in his own native town of Aachen in 1907 a glider and with this he made many remarkable flights.

Then he turned to power-flying. He entered the War as a pilot, and in spite of his already advanced age proved to be a good and well known scout flier, until the Superior Army Command selected him to develop the large aeroplanes.

In this branch he did most valuable work and flew all the types produced by Dr. Dornier. He was also a writer after the War, and for some time he worked also with Professor Junkers.

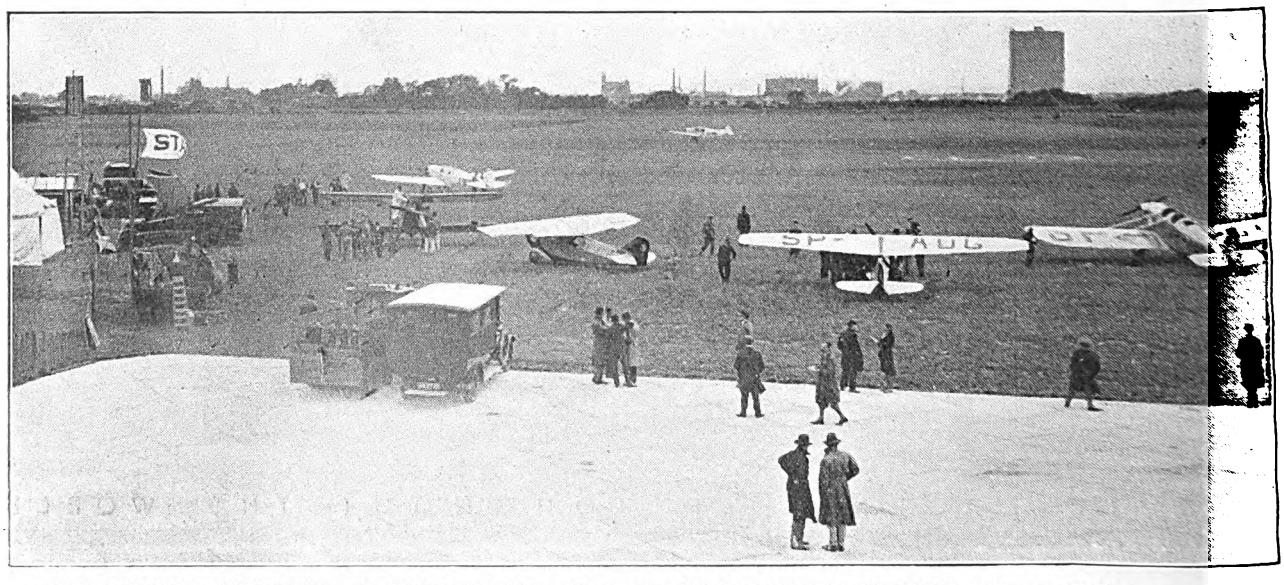
When in 1920 the German gliding movement came into being, Offermann was one of its staunchest promoters, whose counsel was always listened to and who enjoyed a great esteem as a link between Lilienthal and the after-War gliding pilots. In spite of his love for gliding, he did not neglect power-flying. He was elected representative to the Guggenheim's Fund, was made a member of the German Air Council, and there he co-operated in the organisation of many German Sports Competitions.

Despite his 45 years he took part in all the sporting events of aviators, and as pilot of the machine of the Aero Club of Germany achieved great success. Last year, as also this year, he was the oldest (in age) competitor in the Rundflug.

With all German aviators we regret the loss of one whom we had known for many years and with whom we often discussed questions of international aviation. He was a good colleague, and both in theory and in practice an equally well proved pilot, a man whom we will always remember.—Walter Kleffel.

To this one would add that one mourns Herr Offermann as a friend to whom one is indebted for much kindness. Last year when Herr Hoffmann was killed at Orly one made the mistake of thinking that Herr Offermann had died, and at the Deutsche Aero Club before the start this year Herr Offermann made a joke of his having been killed by The Aeroplane last year, and of reading his own obituary. Now we have to mourn his death in reality. There was no more experienced pilot in Germany. He had flown every one of the many experimental types of big aeroplanes. And he was just as good a pilot on a modern light aeroplane. As a man he was kindly and thoughtful for others and liked by everyone.

With him was killed his passenger, Herr Jerzembski, also a war-pilot of considerable fame, and a valuable personality in German Aviation. To our good friends and colleagues in Germany one offers the deepest sympathy.—C. G. G.



THE HESTON CONTROL.—A B.F.W.23 taking off, and in the foreground a B.F.W.23 and four Polish machines. The British entries had all gone through previously.—("Aeroplane" photograph.)

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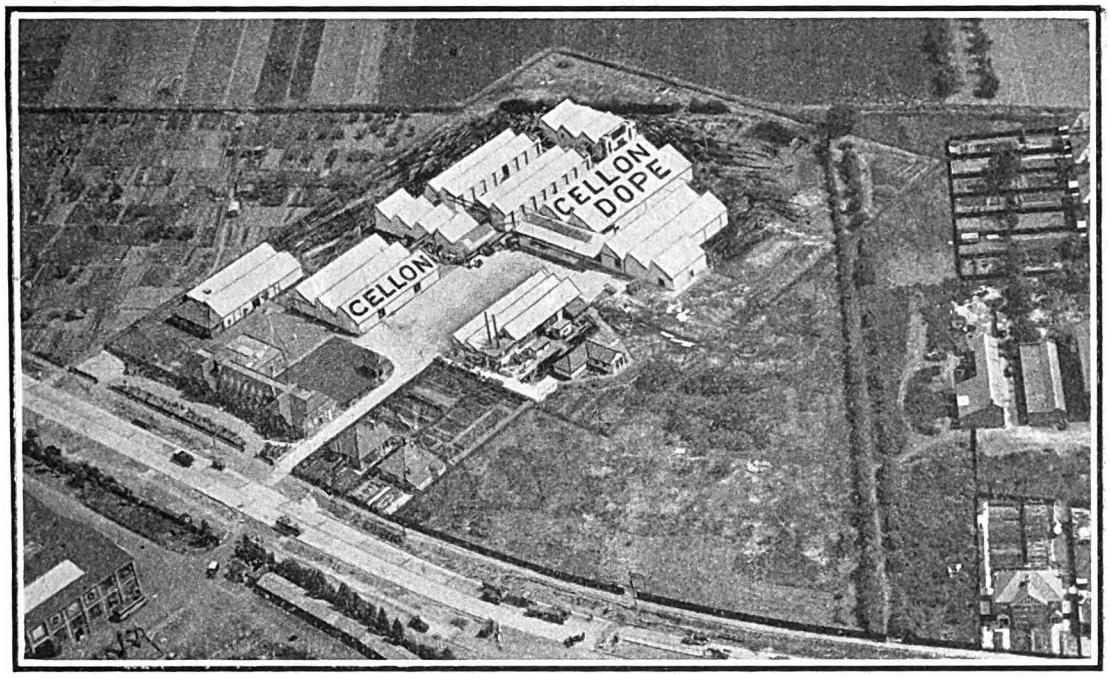
A SUBTLE COMPLIMENT



The above "Evening News" photograph was accompanied with the words "The Air Sign Posts of London—(8) The 'Dope' Works at Kingston." The black lettering upon the staring white roofs of the Cellon Aeroplane Dope Works at Kingston makes a valuable guide for airmen in bad flying weather.

The subtlety of the compliment paid to the fame of Cellon, in choosing the Cellon works as a sign post, is almost exceeded by the "Evening News" reference to the Cellon factory as the Dope Works.

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THE RUNDFLUG—DAY BY DAY.

By F. D. Bradbrooke.

At Staaken, where some 36 of the competitors in the *Challenge de Tourisme International* are now gathered expecting five or six more, the situation is fraught with uncertainty. "Fraught" is indeed the word. The Aeroplane, which stated last week that it was still anybody's race, spoke even more truly than usual. Whoever carries off the trophy will have no mere walk-over.

On Friday a special meeting of the Committee upheld the disqualification of Mr. Butler, which left Mr. Broad in the proud position of the only one with full marks for speed and reliability. Incidentally, in the first 25 competitors, in order of marks, only three failed to score full points for reliability. That means either that the reliability requirements were not very severe or that engines are getting very highly dependable. As both conclusions are probably true a stiffer requirement might meet the situation two years hence.

The basis of the marks for speed seems to have been very well devised, and the range is very great. Mr. John Carberry is only two points behind Mr. Broad on that, and all the runners-up to them are machines in the light class with a much lower minimum.

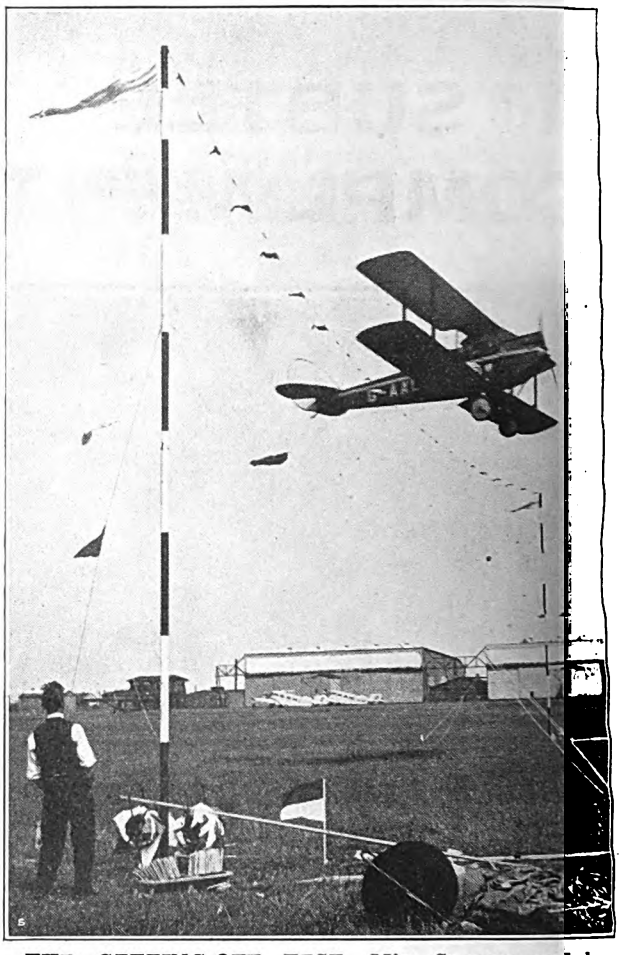
Miss Spooner lost only ten marks for speed, and none for reliability, which is a thoroughly fine performance. Her Moth is capable of 110 m.p.h., flat out, and she averaged 102. Messrs. Butler and Broad both had aeroplanes capable of over 120 m.p.h. and averaged 111 and 109 respectively, just over the maximum. Counting in the business of running to and from controls with log books, etc., there is no slack in any one of these times, and Mrs. Butler, who was Miss Spooner's passenger, must be no mean sprinter.

Mr. Thorn lost 20 marks by trying to take a pass through the Pyrenees instead of flying by dead reckoning over the clouds. The pass closed in and clouds closed down, and as he had lost an hour he decided to go back and refuel, all of which counted in his flying time from that control.

Lady Bailey had even worse luck as she came back to refuel and was forbidden by the marshals to start again in the prevailing weather. The whole night therefore went automatically into her flying time.

Mr. Andrews stayed a night away from a control without leave, which not only ruined his reputation (for reliability in the eyes of the Committee), but also piled up flying time that was spent on the ground. He ran out of petrol between Saragossa and Madrid, because of a leaky washer on a petrol line. Also, he came in after closing time on the return from Seville to Madrid, and that also counted against him as a whole night out. Yet he caught the leading bunch at Posen.

Among the twelve machines which scored over 250 marks for speed and reliability were five B.F.W. M23c, and three Klemm L25e. All but one (a B.F.W.-Siemens) had hanging Argus engines, and all qualify for the light class, which accounts for their high scoring for speed, as they did not average more than 90 m.p.h., except in a few instances.



THE GETTING-OFF TEST.—Miss Spooner and her Moth (Gipsy) jumping the tape.

The poor showing of the French Caudrons (Renault) is due to their disappointing speed and their weight, which brings them into the heavy class.

Tests of Quality.

On Friday a number of the competitors were tested for "quality" and were made to "strut their stuff." With some it was a matter of jury-strutting.

The marks for comfort, etc., have not yet appeared, but the starting of engines and unshipping of wings has been assessed with solemn ceremony. Here the ancient superiority of the English machines has gone by the board

PASSING UNDER THE YOKE.—The Junkers Junior (Armstrong Siddeley Genet) doing the Gate Test.

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because of the very neat and fast folding of the B.F.W.s, practically all of which got full marks, as did the Moths and Spartan. The Klemms lost a few points for their detachable wings, but lost very little on time.

The starting of engines by the good old English armstrong method lost the British delegates a cool six points each without argument. The Argus-owners earned three each for their side-crank and the Salmson got six for being crankable from within the cockpit.

Time was another matter. Strangely enough, two B.F.W. (Argus) machines, which got three marks each for "ease of starting," failed to get any at all for the time in which they did it. Still more strangely, the two ladies were the only "Englishmen" to get full marks for quick starting, and were two of the very few of any nationality who did so! Miss Spooner and Lady Bailey thus each got 24 points, which is the "possible" for a Moth, and two more than Mr. Broad, who was, at the time of writing, only four points ahead of Herr Morzik, last year's winner.

Mr. Carberry, whose wings are unbending, loses thereby a clear 18 points and can hardly recover the ground unless the judges of comfort decide that he toured Europe in positive luxury.

Next to Herr Morzik's B.F.W. (Argus) is the Klemm (Argus) of Herr Poss. They have 288 and 287 points respectively against Mr. Broad's 292. The margin is not enough to lean on, especially as both Germans have wheel brakes. Oscar Notz, in another Klemm (Argus), holds 286 points, and then Miss Spooner with a splendid 284, as she gained five places by her speed in and out of action with wings and engine.

Wheel brakes begin to look serious. Not only do they carry nine marks by their mere existence, which is a distinct threat to our front in its present state, but they are a big advantage in the take-off and landing tests. They may be left on for the take-off until the engine is giving full revs., and they may be applied after landing.

As the distance, in both instances, is measured from the wheels at rest to an obstacle 25 ft. high over which both take-off and landing must be made, this advantage is considerable. In fact, as these two occasions are the only real uses for brakes the marking might have been made more severe for these tests and the gratuitous nine points eliminated. They are obviously earned only by extra manœuvrability on the ground, which is neither so great nor so important as that.

Miss Spooner practised landings over the obstacle this morning (Saturday), and the roll was very obvious, in spite of efforts to drop G-AALK utterly dead. In fact, the Moth had obviously quite finished flying some feet before it touched, and Miss Spooner at last gave up "maltreating the undercarriage," as she said, although one has seen school Moths come smiling through a great deal worse.

The trials on Monday are going to be interesting. The fuel consumption tests are being run off on Sunday over a 300 km. course. The English contingent is praying for a gale, as their effective speed will be greater at a lower excess consumption than most of the others. Most of the competitors will get their 10 points for minimum limit, and it will be very difficult to gain much of the remaining 10 points for lower consumption.

If the Gipsy II Moths can fly at 75 m.p.h. on 5½ gals. per hour they will probably get 14 marks on a calm day (by personal calculation). What the Argus consumes, and at what speed, is still a dark secret.

Late Notes.

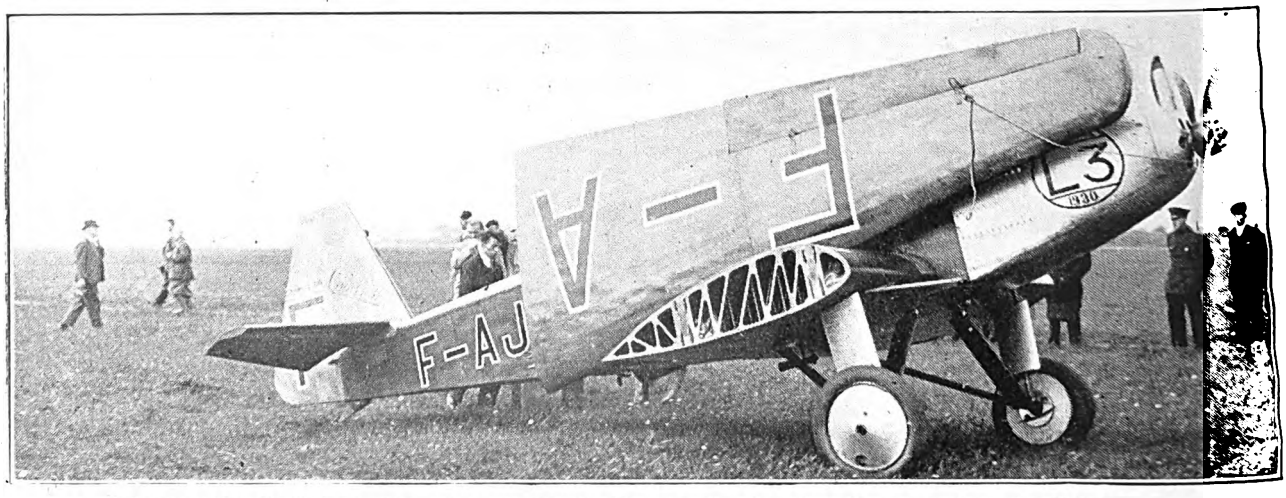
In the tests for fuel consumption Mr. Hubert Broad dropped three marks and only secured 27 out of a possible 30. On the other hand Miss Spooner gained full marks for fuel consumption as did also Herren Morzik and Poss.

AFTER THE FRAY.—Mrs. Butler and Miss Spooner At Tempelhof immediately after the Tour.

The following are, according to *The Times*, the first twelve scores, up to Aug. 4:—Captain Broad (Gipsy Moth), 319; Herr Morzik (B.F.W.), 318; Herr Poss (Klemm), 317; Miss Spooner (Gipsy Moth), 314; Herr Notz (Klemm), 314; Herr von Massenbach (B.F.W.), 307; Herr Polte (B.F.W.), 306; Herr Dinort (Klemm), 304. Herr Krüger (B.F.W.), 303; Mr. Carberry (Mono Special), 303; Herr von Köppen (B.F.W.), 300; Mr. Thorn (Avro Avian), 282.

IMPORTANT DATES.

Aug. 7.—International Touring Competition ends at Staaken (Berlin).
Aug. 17.—I.O.W. Flying Club Meet at Shanklin.
Aug. 30.—Liverpool-Manchester Air Race for Cundiff Trophy (Displays at Hooton and Barton).
Aug. 30.—Bedfordshire Aero Club Display, Goldington.
Aug. 30.—Air Fete and At Home at Cramlington (Newcastle).
Sept. 1—6.—International Congress on Air Navigation at The Hague.
Sept. 6.—Official opening of Mr. Lindsay Everard's private aerodrome at Ratcliffe, Leicester.
Sept. 6.—Bristol Air Garden Party to the British Association.
Sept. 27.—Air Meeting at Hanworth.
Nov. 28—Dec. 14.—International Aero Exhibition in Paris.



ONE WAY OF DOING IT.—Arrachart's Caudron, with wings detached and tied alongside.

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THE AIRCRAFT IN THE CHALLENGE DE TOURISME.—II.

(*Continued from page* 300.)

COMPACTNESS.—The Junkers Junior with folded wings.—(" *Aeroplane* " *photograph.*)

The nose of the P.Z.L.5 biplane with the Gipsy engine and cowling.—(" *Aeroplane* " *photograph.*)

The Junkers Junior.

A8, A9, E2.—The three Junkers Juniors are of the standard type with the 80/88 h.p. Armstrong Siddeley Genet engine.

A8 has a wing-folding device which is of interest. Instead of completely detaching the outer sections of the wings by undoing the four screw collars which connect the four main tubes in the wings and wing-stubs the leading-edge tube in the wing section is so mounted that it can revolve in the leaf of a hinge which is bolted to the leading edge of the wing-stub.

By undoing the four collars the wing is turned up on edge and swung round parallel to the fuselage, where it is held in place aft by clips on the leading edge of the tail-plane and forward by rods to the top of the fuselage.

A9 and E2 have the standard completely-detachable wings.

E2 has independently-operated wheel brakes.

A8 and A9 have Bosch starter magnetos with an impulse-starter device which is part of the main magneto.

E2 has a Bosch starter magneto as well as a hand-starter.

All machines have the oil-cock interconnected with the ignition system so that the engine cannot be started with the oil turned off.

All machines have complete dual control and adjustable rudder-bars; and a set of mooring-out equipment is carried.

The following is a brief specification of the Junkers Junior:—Span 10 m. (32 ft. 9 in.), length 7.12 m. (23 ft. 3½ in.), wing area 13.7 sq. m. (147.4 sq. ft.), weight, empty, 350 kgs. (770 lbs.), weight loaded, 600 kgs. (1,320 lbs.), speed, max., 170 k.m.p.h. (105.6 m.p.h.), cruising speed 140 k.m.p.h. (87 m.p.h.).

The R.W.D.2.

P3, P4.—The R.W.D2 is a little two-seat cantilever monoplane, which has been designed by Messrs. Rogalskiego, Wigury and Drzewieckiego (hence the initials), and built by the aeronautical students of the Technical High School at Warsaw.

The fuselage is in section a rectangle surmounted by a triangle with concave sides built on six longerons and covered with plywood. The cockpits are in the rectangular portion of the fuselage and holes are cut in the sides of the triangular portion for the heads of the crew.

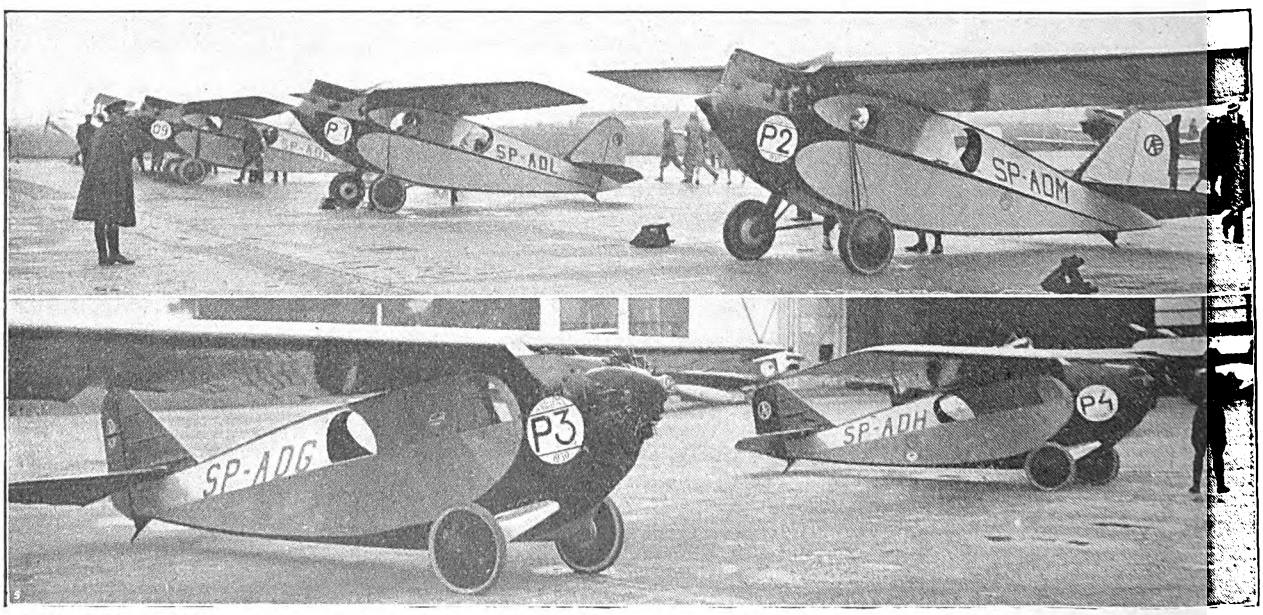
The wing is a cantilever and is anchored direct to the apex of the triangular section of the fuselage, which actually has a six inch flat top, by three attachments, two to the front spar and one to the back spar.

The wing is of all-wood construction and is covered with plywood back to the rear spar and with fabric from the back spar to the trailing edge.

The undercarriage consists of two short axles which are hinged to the bottom rails of the fuselage and float between two fixed tubes to which they are sprung by rubber cord. Each little undercarriage unit is faired in. Wheel brakes are fitted.

The engine is a 40 h.p. Salmson radial and the fuel tanks are carried in the wing.

A brief specification of the R.W.D. 2 is as follows: Span 9.8 m. (32 ft. 1 in.), Length 6.15 m. (20 ft. 1 in.), Wing area 13.6 sq. m. (146.3 sq. ft.), Weight empty 250 kgs. (550 lbs.), Weight loaded 500 kgs. (1,100 lbs.), Speed, max. 155 km.p.h. (96.2 m.p.h.), Cruising speed 130 km.p.h. (80.7 m.p.h.).



THE BLIND MICE.—Above, R.W.D.4s (Hermes); below, R.W.D.2s (Salmson). Greater and lesser Blind Mice before the start from Tempelhof, Berlin.

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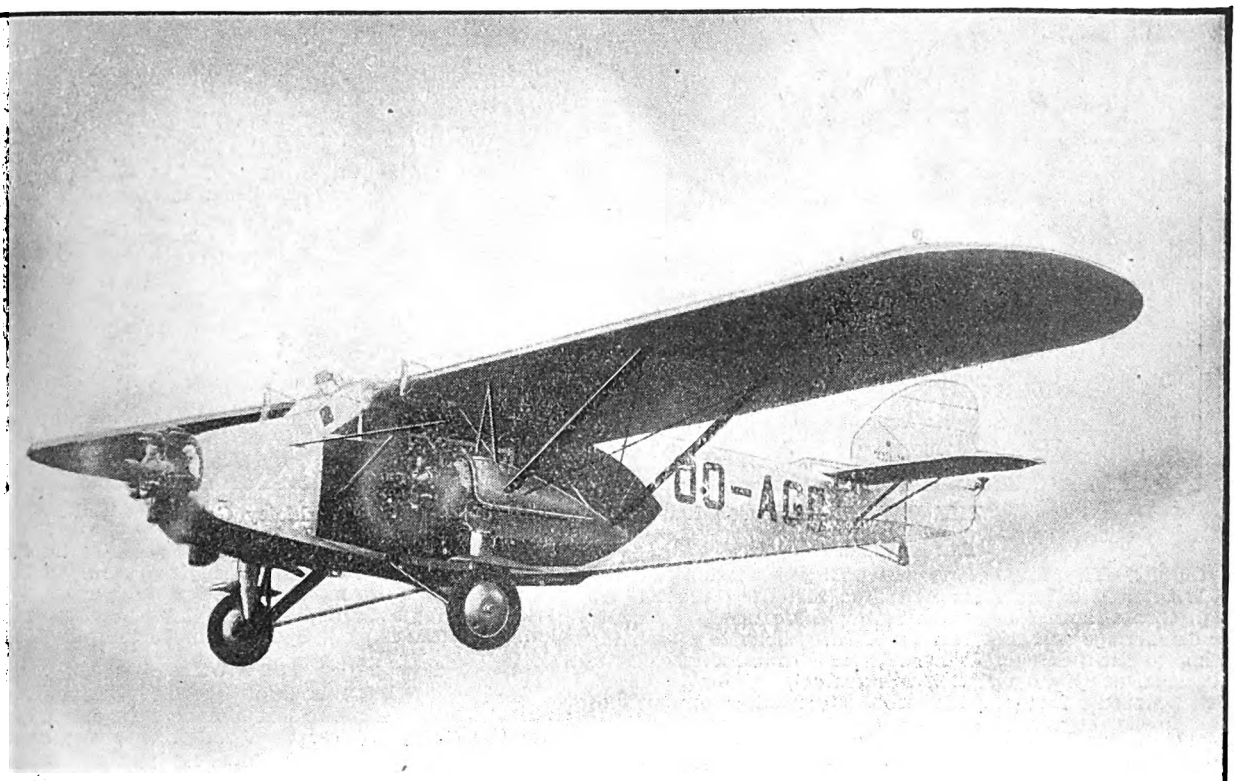

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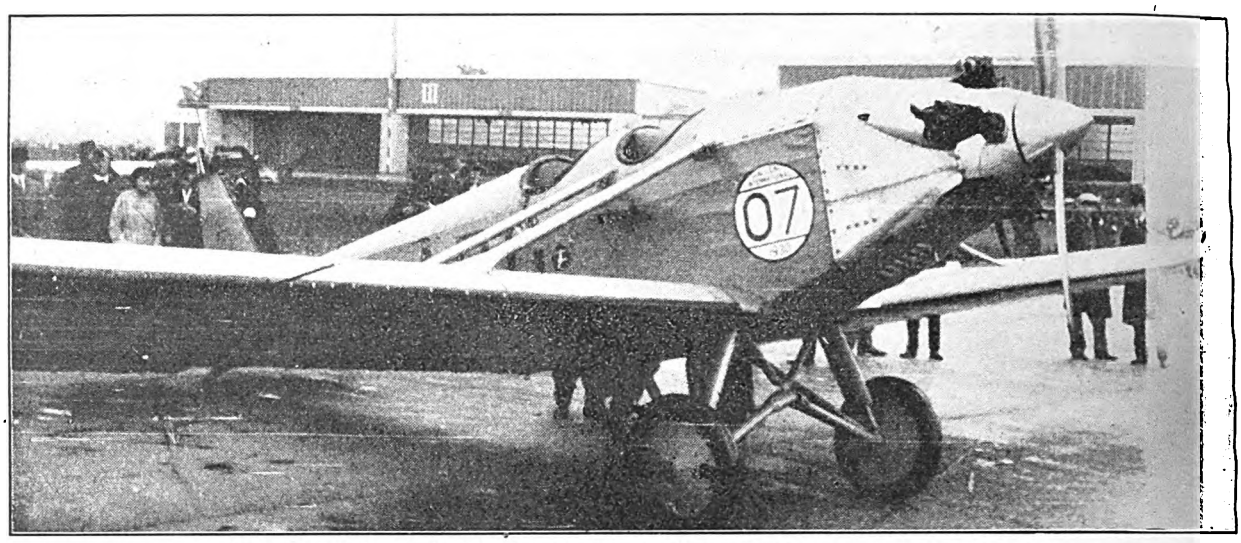

THE P.W.S.51.—A Polish low-wing monoplane (Armstrong Siddeley Genet).

THE R.W.D.4.

O9, P2.—The R.W.D.4 is an enlarged version of the R.W.D.2 and differs from that type in having the 105/115 h.p. Cirrus-Hermes engine, a rather more nearly adequate undercarriage and four instead of three bolts to attach the wing to the fuselage. The shape and construction of the fuselage, wing and tail unit is identical, but both cockpits are placed further aft to offset the weight of the heavier engine.

The cockpits are roomy and both have full-length doors. Between the cockpits is a baggage compartment with a door on the right side of the triangular deck.

The undercarriage consists of two compression-legs running down from the top fuselage longerons with the bottom ends hinged to the bottom longerons by short axles and radius-rods.

The following is a brief specification of the R.W.D.4:—Span 10.5 m. (34 ft. 5 ins.), Length 7 m. (22 ft. 10 ins.), Wing area 15 sq. m. (161.5 sq. ft.), Weight empty, 398 kgs. (875.6 lbs.), Weight loaded 780 kgs. (1716 lbs.), Speed, Max. 205 km.p.h. (127.3 m.p.h.), Cruising speed 170 km.p.h. (105.5 m.p.h.).

THE P.Z.L.5.

O1, O2.—The P.Z.L.5 is a two-seat open cockpit biplane built by the Panstwowe Zaklady Lotnicze, or State Aircraft Works in Warsaw. In general outline it resembles a crude imitation of the Moth or Avian.

It has single-bay wings of semi-thick section and no stagger. They are of wood with fabric covering. The wings are arranged to fold and the trailing edge of the centre section hinges up to accommodate the trailing edges of the wings when they are folded.

The fuselage is also of wood with the deck covered with plywood and the sides and bottom with fabric.

The undercarriage is of the Vee type with half axles hinged to the apex of a transverse Vee between the front legs. Wheel brakes are fitted. The tail-unit is normal except that the triangular tail-plane is of very large area.

The engine is a D.H. Gipsy and a gravity fuel-tank is carried in the centre-section.

The following is a brief specification of the P.Z.L.5:—Span 8.3 m. (27 ft. 2 ins.), Length 6.9 m. (22 ft. 7 ins.), Wing area 21.8 sq. m. (234.5 sq. ft.), Weight empty 410 kgs. 902 lbs.), Weight loaded 745 kgs. (1,640 lbs.), Speed, max. 165 km.p.h. (102.4 m.p.h.), Speed, min. 70 km.p.h. (43.5 m.p.h.).

THE P.W.S.8.

O5.—The P.W.S.8 is built by the Podlaska Wytwornia Samolotow. It is a two-seat biplane with open-cockpits, and has the 85 h.p. Walter Vega radial air-cooled engine.

The wings are of the single-bay type and have a semi-thick section. There is one set of "N" struts on either side of the fuselage. The interplane bracing on each side consists of one rigid strut in the plane of the rear spars, which slopes up from the bottom rear spar hinge to the upper point of attachment of the back interplane strut. Ailerons run the full length of the trailing edge of the bottom planes only.

The fuselage is a wooden structure covered with plywood. The two seats are in tandem and there is a large luggage locker behind the back seat.

The undercarriage is of the split type with the radius rods running forward and the inner ends of the axles hinged to the centre-line of the fuselage.

THE P.W.S.50.

O6.—The P.W.S.50 is a two-seat cantilever middle wing monoplane with the 85 h.p. Cirrus III engine.

The crew of two is accommodated side-by-side between the spars of the cantilever wing which pass through the fuselage just below the top longerons. In this position the view from the cockpit is bad and the cockpit is not very accessible. To get to the cockpit the crew must climb up onto the trailing-edge of the wing, for which handrails are provided on the deck of the fuselage, and walk or crawl forward up a walkway alongside the fuselage.

The rectangular fuselage is of wood and is covered with plywood.

The wings are also of wood and are covered with plywood back to the rear spar, and with fabric thence to the trailing edge. The tail unit is normal. The adjustable tail plane

The nose of the P.W.S.8 rigidly-braced biplane (Walter Vega engine).—(*"Aeroplane" photograph.*)

The nose of the P.W.S.50 middle wing monoplane (Cirrus III engine).—(*"Aeroplane" photograph.*)

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Breakfast at Lympne.

MALTA FLIGHT

New World's Record

FOR LIGHT AEROPLANES set up by Capt. C. D. Barnard on a De Havilland Puss Moth covering

2,500 miles in 26 hours 25 mins.

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AVIATION PRATTS SEALED

Dinner at Malta.

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is braced to the fuselage by one rigid strut and to the fuselage and fin by two extremely thin cables and turnbuckles.

The undercarriage is of the divided type. It has two vertical compression-legs running up to the front wing-spars, and the axles and radius-rods are hinged to the bottom fuselage longerons.

The engine cylinders stand up above the fuselage and are cowled in. The two fuel tanks are carried in the leading edge of the wings, one on each side of the fuselage.

The following is a brief specification of the P.W.S.50:—Span 11 m. (36 ft.), Length 7.1 m. (23 ft. 3 ins.), Wing area 20 sq. m. (215.2 sq. ft.), Weight empty 393 kgs. (864.6 lbs.), Weight loaded 600 kgs. (1,320 lbs.), Speed, max. 155 km.p.h. (96.2 m.p.h.), Landing speed 65 km.p.h. (40.4 m.p.h.).

The P.W.S.51.

O7.—The P.W.S.51 is a two-seat low-wing monoplane with the 80/88 h.p. Armstrong Siddeley Genet engine.

The fuselage is a welded steel-tube structure of the Fokker type which has small segments of tube welded into the corners of all the bays through which the fuselage bracing wires are threaded. It is covered with fabric.

The crew are in open tandem cockpits and there is a large luggage locker aft of the back cockpit.

The wings are of wood and are covered with plywood. They are anchored to the bottom fuselage longerons and are braced to the top longerons by parallel struts of steel tube.

The undercarriage is of the split type in which the axles are hinged to a transverse Vee between the front legs of the side Vees.

The C.A.S.A. Monoplane.

T3.—The C.A.S.A. monoplane is built by the Construcciones Aeronauticas S.A. of Getafe, Spain, and it can best be described as a Spanish version of the Westland Widgeon. It is a two-seat high-wing braced monoplane with the D.H. Gipsy engine. The whole machine is of metal construction and is covered with fabric.

The centre section is carried above the fuselage by four inverted Vees of steel tube, one at each spar-root, and the outer wings are braced to the fuselage by built-up steel Vee struts. The wings are made to fold round the rear-spar joints and the apices of the Vee struts. Differentially-controlled ailerons are fitted.

The undercarriage is of the divided type with oleo-pneumatic compression legs running up to the top fuselage longerons.

The Gipsy engine is enclosed in a big wide cowling which has a hole in the front for the cooling air.

The following is a brief specification of this machine: Span 10.34 m. (33 ft. 10 ins.), Length 7.5 m. (24 ft. 6 ins.), Wing area 16 sq. m. (172 sq. ft.), Weight empty 400 kgs. (880 lbs.), Weight loaded 730 kgs. (1,600 lbs.), Speed, max. 200 km.p.h. (124.2 m.p.h.), Cruising speed 180 km.p.h. (111.8 m.p.h.), Minimum speed 75 km.p.h. (46.5 m.p.h.).

The St. Hubert Monoplane.

L2.—The St. Hubert is a small two-seat high-wing monoplane with an 110 h.p. Walter Venus radial air-cooled engine.

The fuselage is rectangular forward but towards the tail the bottom longerons converge to give a triangular section aft. It is a wooden structure and is covered with plywood.

The cantilever wing, which tapers in plan and thickness, is carried above the fuselage on a system of steel tube struts which connect with both the top and bottom fuselage longerons. The wing is of wood and is covered forward with plywood and aft with fabric. The fabric portion of the wing covering is grained to give the appearance of wood but its slackness at the time of the machine's passage through Heston rather destroyed the illusion. The two main fuel-tanks are carried one on either side of the fuselage in the wing.

The undercarriage is of the divided type with the main compression legs running up to the front spars of the wing at points where the main wing supporting-struts are attached.

The tail plane is normal but the rudder and fin are very low. All surfaces are unbalanced.

The Breda 15.

S1.—The Swiss-built Breda 15 entered in the contest differs from the standard model, examples of which have been seen in this country, in that it has wings of elliptical form which are braced to the fuselage by a pair of cross-braced parallel steel tubes on each side. The intermediate bracing by small vertical struts running up from the struts to the wing have been eliminated. Normal ailerons without the camber-changing device are also fitted.

The fuselage, tail-unit and undercarriage are of the standard Breda 15 type.

The engine is 110 h.p. Walter Venus air-cooled radial.

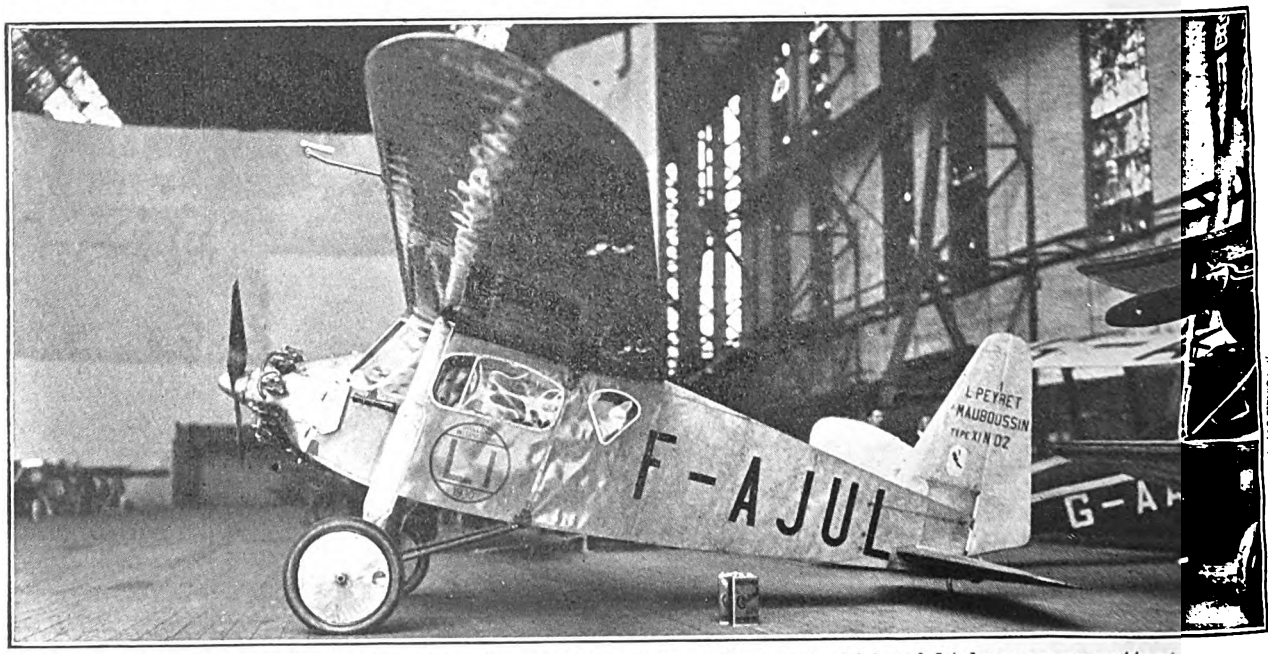
The foregoing notes are necessarily brief but one hopes that, in conjunction with the many photographs which have appeared in The Aeroplane, they will provide a review of such European light aircraft as are competing in the *Challenge de Tourisme International.*

TWO NEW GERMAN MAIL-PLANES.

As has been pointed out in The Aeroplane from time to time, the Luft Hansa are devoting a great deal of attention to the development of long-distance air-mail routes such as those to the East, and down through Europe to South America by way of an airship link across the Atlantic, either based on Spain or the Canaries. Rumours of new machines for such work were circulating among the British contingent at the start of the Rundflug.

One of the two new machines which is being built for such service is the Focke-Wulf A—36 which has the distinction of being the first low-wing monoplane to be built by this firm. The engine will be a 525 h.p. B.M.W. Hornet for the construction of which this firm holds the licence from the Pratt and Whitney Company. This machine carries a crew of two and 300 kgs. (661 lbs.) of mail. The top speed is 260 km./hr. (161.5 m.p.h.) and the cruising speed is between 220 and 230 km./hr. (137/143 m.p.h.). The range is 1,600 km. (nearly 1,000 miles.

The other machine is the B.F.W. M—28. This is a high-wing cantilever-monoplane and also has a 525 h.p. B.M.W. Hornet engine. This machine will carry the same load at the same top speed as the other machine for the same range. If the normal safe load is exceeded the range can be extended to 3,600 km. (2,280 miles). This machine has a tapering wing of enormously high aspect-ratio, and is said to cruise at about 140 m.p.h.



THE SILLIEST ENTRY.—The Peyret-Mauboussin, with a tail which might be a grass-cutter.

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Literature upon request.

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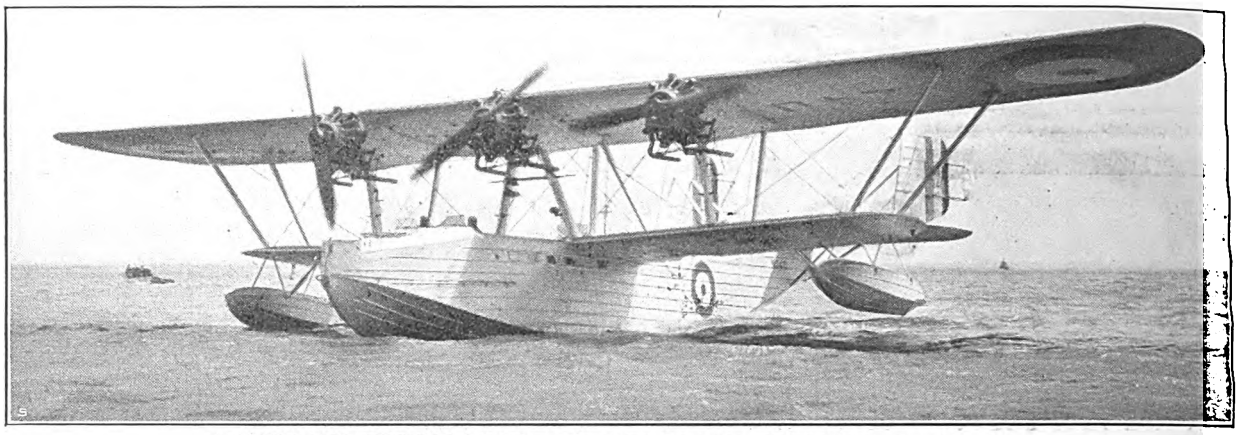


A HIGH-SEA FLYING-BOAT.—The Saunders-Roe A.7 (three Jupiter IXs).

A NEW SERVICE FLYING-BOAT.

The new flying-boat known as the A.7, built by Saunders-Roe Ltd. to the order of the Air Ministry, has been flying recently. So the few particulars that can be published about a machine which is not on the open list should prove of interest. Actually, it is in what is commonly called the "Southampton Replacement" class. That is to say, it, together with boats built by the Supermarine Works, Blackburn's, and Short's, are in competition for the Air Ministry contract which will be given when the well-tried and World-famous Supermarine Southamptons are considered to be obsolete.

The A.7 is an all-metal flying-boat, built principally of duralumin, with stainless steel for the highly-stressed parts. It is a biplane with the three engines placed unusually in the upper plane. The tail-plane with a fin at each end also gives it a characteristic aspect.

The planes have a deep aerofoil section, the lower plane has a constant chord but the extensions of the upper plane taper in chord towards the tips.

The hull follows the now accepted Saunders-Roe method of construction with straight sides and longitudinal corrupations widely spaced. The straight frames and simple plates which go with this system of construction make for easy maintenance.

The tail-unit is mounted straight on top of the hull. The twin fins are rigidly braced inboard. Servo rudders are used.

The wing-tip floats have been specially designed to absorb the shocks of alighting.

The three Jupiter IX engines are mounted on frames slung beneath the upper wing. The oil tanks and starting-gear are housed in the fairings behind the engines and the fuel is fed by gravity from tanks in the wings.

SPECIFICATION.

Dimensions: Span (upper), 88 ft. (26.822 m.); length, 64 ft. 6 in. (19.659 m.); height, 19 ft. 3 in. (5.867 m.); wing area, 1,567 sq. ft. (145.5 sq. m.).

Weights and Loadings: Wing loading, 13.4 lbs./sq. ft. (65.5 kg./sq. m.); power loading, 14.4 lbs./h.p. (6.5 kgs./h.p.).

MANY INVENTIONS.

Mr. Charles Barnard's remarkably fine flight from London to Malta and back non-stop both ways in a Puss-Moth with Arens controls has been somewhat overshadowed by the blare and glare of Miss Amy Johnson's arrival. Barnard, by the way, took a milk bottle with him, presumably for his drinking water, and this astonishing receptacle when emptied out of the machine got the wind into it and acted like an orchestra composed of a Swiss yodelist in forlorn search of his favourite goat, a saxophone in a badly punctured condition and a corncrake singing its swan song.

The evening of his arrival at Croydon Barnard set off again for Stag Lane later and over Croydon he demonstrated his newly invented wind instrument in a manner which caused the Aerodrome syren to hang its head and blush for shame.

Talking of Arens controls somebody should fit *The Daily Mail* headline king with adequate controls. His last poetic outburst was a headline in black letters spread over about two pages alluding to Miss Johnson's flight as—"Historic Flight Whilst All The World Wondered." And although no prize is offered for completing this little poem we offer the following to whom it may concern for what it is worth.—

Historic flight whilst all the world wondered
Ere it commenced we most horribly blundered.
But since its success *how* we've volleyed and thundered.

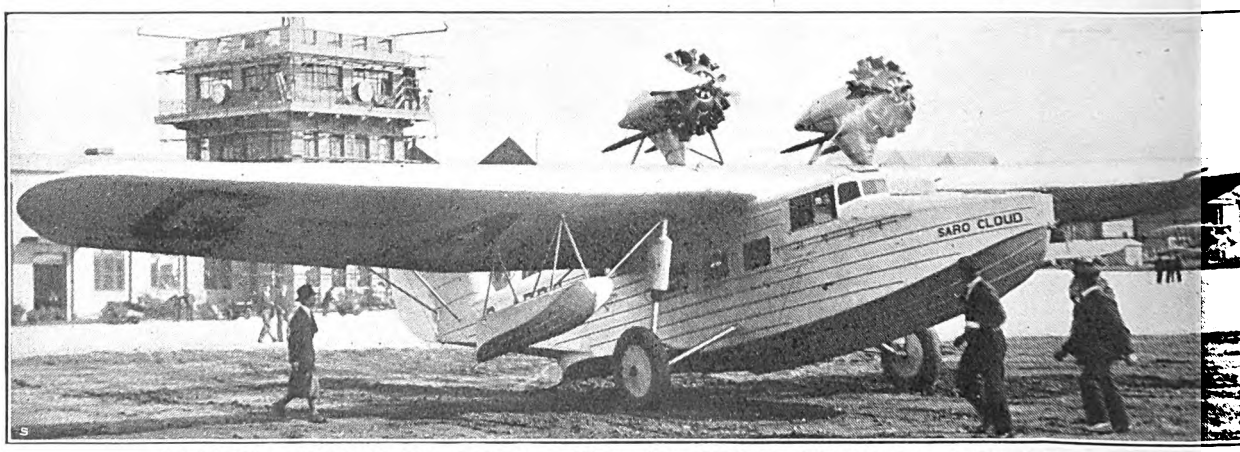
It is said, by the way, that admission to the sacred tarmac or arrival platform on Monday was not granted upon such mundane considerations only as blue blood or aristocratic lineage (else the place might have been deserted anyhow) or even upon the undisputed possession of a top hat and spats, but upon the good old biblical precedent of a shibboleth. The candidates who pronounced aviation to rhyme with gravy and nation were flung out on their ear but those who said avvyashun to rhyme with navvy and ration were hailed as elect and given seats.

A remarkable platform was erected on the tarmac resembling an ornate, if somewhat tawdry, boxing ring at a country fair of which the corner posts were suitably padded with red baize. Fire-buckets were placed at the corners, and the Authorities tried to borrow Spry's bath sponge, saying "Be a sport," but nothing doing.

A story is told with much gusto at the Aerodrome of how the aunt of a well-known commercial pilot with about ten years' air-line piloting to his credit remarked to him that in time he would probably be as good a pilot as Sir Alan Cobham—the moral of the story is obscure.

When van Dyk, the K.L.M. pilot who flew the Atlantic with Kingsford Smith, arrived in Holland recently there were 9,000 people at Schipol Aerodrome, Amsterdam, to meet him. It is understod that there were joyous celebrations that night and many a bowler hat sat uneasily upon a fevered brow next morning.

Reverting to Charles Barnard's milk bottle it has been suggested that double magnum and even jeroboam size milk bottles should be manufactured and fitted to the aeroplanes of certain pilots we wot of so, that their acquaintances could hear them coming from afar off and run and hide.—SPRY.



A BIGGER AMPHIBIAN.—The Saro Cloud (two Wright Whirlwinds) at Croydon.

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HANWORTH AIR PAGEANT

The first and second prizes in the Hanworth—Reading—Farnboro—Hanworth Handicap Race were secured by

1st. Capt. E.W. Percival flying a Hendy 302 (Cirrus-Hermes engine)

2nd. Mr. C. S. Napier flying a Westland Widgeon (Gipsy 1 engine)

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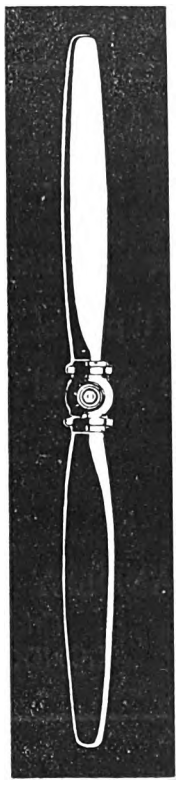

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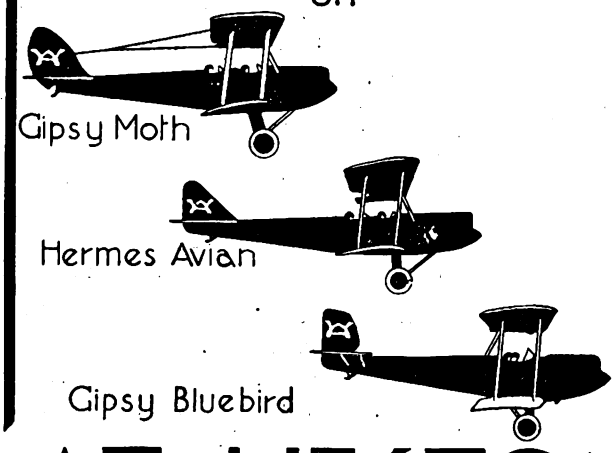

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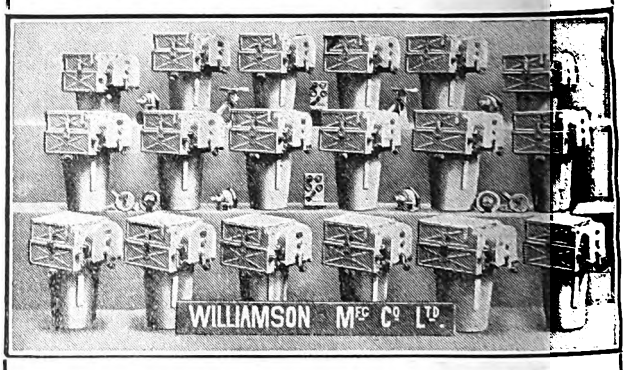

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TRADE NEWS

A TRADE CHANGE.

Major Jack Stewart, who has been in charge of the sales of Cirrus Aero-Engines since their beginning, has resigned, and his connection with the firm ceased last week.

CHANGE OF ADDRESS.

As and from July 31 the Administrative and Sales Offices of Cirrus Aero-Engines Ltd. have been removed to their works adjoining Croydon Aerodrome.

The importance of Croydon as an Airport, where Continental visitors are constantly arriving and departing, necessitates the Offices being situated near the Works and Aerodrome.

ENTERPRISE.

The Smith's Aircraft Instruments branch of S. Smith and Sons Ltd., has recently given two excellent examples of enterprise in securing trade abroad. The first was in having Mr. Neville Stack flying round Europe in his Hermes Avian which has been equipped with a complete range of Smith's Instruments and the second was in having a stand at the International Transport Exhibition at Poznan, or Posen, as it is perhaps better known in this country.

This stand has been particularly successful and has been inspected by every Government official of importance whose departments are in any way interested in such products.

Mr. Stack visited Posen on his way round Europe, and, as elsewhere, his machine created a very favourable impression. His appearance at Posen was particularly fortunate as he was able to fetch a spare airscrew for Mr. Butler from Berlin after the latter had got bogged in the local aerodrome.

Mr. Stack has been down to Italy, into Germany, into Poland and was last heard of in Denmark on his way home. Everywhere the local agents are enthusiastic about the results achieved by having the instruments flown over in the machine and actually demonstrated therein. One gathers that the Armour Drift Indicator, or Smoke-Bomb, apparatus is creating quite a *furore*.

The firm is just as energetic at home and have recently completed a showroom (new style) for distinguished visitors and clients. This is a kind of lounge, with various showcases round the walls in which are arranged every type of instrument that the firm supplies. Anyone can go round to 185, Great Portland Street, and compare the merits of the various types at leisure.

A FAMOUS FIRM OF STRUCTURAL ENGINEERS.

The healthy state of the Aircraft Industry is shown by the flattering attention which big and old-established firms outside the Industry are beginning to show in things aeronautical. There is a definite tendency for such concerns to open departments which are specially organised to meet the needs of aircraft.

In some instances this interest is not so much newly-awakened as re-awakened, and this is notably the case with William Bain and Co. Ltd., who started to make a name for themselves as long ago as 1859. During the War 1914-18 they were producing sheds for aircraft as hard as they could. Now once again they are entering the field of aviation.

This firm, as steel structural engineers, are in a very strong position. Not only do they produce in quantity the types of material from which steel buildings are made, but they design, manufacture and erect such buildings themselves. They also have a department for the production of parts in concrete, and a timber department. Thus they can quote for composite buildings at reasonable figures. They can also do all the necessary interior partitions in wood for offices and the like.

One should perhaps point out that the firm do not contract for the modern type of steel-framed reinforced concrete city building. Their speciality is the class of building required for the various shops in a works with big spans and bays, and lighted roofs. The firm has a skilled staff of erectors, who are controlled by the Erection Department of the office staff, so that not only can one order a building but one can have it put up by people who know how—and this is done abroad as well as at home.

BRITISH ENTERPRISE IN POLAND.—The stand of S. Smith and Sons at the International Transport Exhibition at Poznan (Posen) in Poland. Various well-tried products of the firm can be seen on the stand. Seated on the right of the picture are Mr. Neville Stack, Mr. A. V. Frank, the local agent for Smiths, and Mr. J. de Haene, their Continental representative. At the back is Mr. Ostrowski, an officer of the Polish Air Force, who was helping Mr. Franks during the Exhibition.

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The registered offices and works of William Bain and Co. Ltd. are at Coatbridge, near Glasgow, which, as everybody knows, is a district famed for its steel-work, quantities of which are shipped all over the world. As a result of being so well placed for raw materials, fuel and power, the firm are able to produce at such a figure that even when their products have to be transported as far as the South of England they are still in a strong position to compete for orders. This question of freight does not arise in the same way for export orders, as goods can be quoted f.o.b. Glasgow, which is just as good a port for shipment as anywhere else, —and rather better than most.

Enough has been said to show that people who want a small-lock-up for their light aeroplane can be sure of attention from William Bain, as can also the local or metropolitan airport. The firm are preparing a special scheme of lock-ups for the various requirements of the private owner.

Manufacturers whom the expansion of civil aviation is forcing to extend their plant can get really good accommodation for their purposes from this firm.

Another product of the firm is fencing of various types. This is a definite requirement of all aerodromes, not to keep the wild aeroplanes in, as some might suggest, but to keep the curious from getting too near trouble.

Any *bona-fide* inquirers can be sure of attention from the special department which deals with estimates and quotations. This department makes a speciality of quoting for individual requirements. Such inquiries should be accompanied by the fullest possible information, and, if possible, drawings, as the more information is made available the easier becomes the preparation of an estimate.

The London office of the firm is at 110, Cannon Street, E.C.4.

ANOTHER TRADE CHANGE.

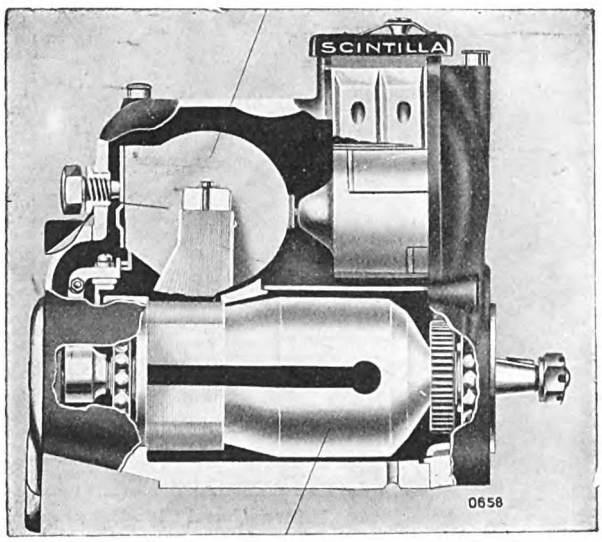
His many friends will be interested to learn that Capt. F. R. Walker, who has been with A.D.C. Aircraft Ltd. at Croydon for many years, has joined Imperial Airways Ltd. Rumour says that he is going to South Africa.

THE SCINTILLA MAGNETO.

So many notable performances have recently been put up by aircraft which have had Scintilla magnetos that some explanation of the unorthodox way in which this very successful magneto works should prove of interest.

The Southern Cross which was the first multi-engined aeroplane and the second heavier-than-air machine to make the east to west crossing of the North Atlantic had Scintilla magnetos. In fact Scintilla Ltd. state that every American aircraft to make the crossing in either direction has had these magnetos.

Just the other day a machine piloted by the brothers Hunter stayed in the air for practically 24 days. During this time both the Scintilla magnetos cheerfully produced about 8,000,000 sparks every 24 hours.



SIMPLICITY. — A section through the Scintilla magneto showing the rotating magnet and the stationary armature above it.

The particular feature of the Scintilla is that the permanent magnet, which is the most robust part of any magneto, rotates. The delicate parts such as the armature and the contact breaker are stationary. When one considers the very high speeds at which magnetos have to revolve the advantage of having the permanent magnet as rotor has much to be said for it.

This magnet has either two or four poles, according to the number of sparks required per revolution. Scintilla Ltd. also make an eight-pole magnet on the same principle as the two-or four-pole magnet but which with an eight-lobed cam gives eight sparks per revolution.

One of the advantages of having the armature stationary is that it can be simply wound round a drum. The condeiser is inside the windings. The armature is mounted on the pole shoes and above the rotating magnet. This is connected by rubbing contact to the make-and-break.

This contact-breaker is also simplified and has only one moving part, which is the rocker arm. This works off the cam on the end of the rotor-spindle.

The advancing and retarding of the timing is done by oscillating the mounting of the rocker about the cam. The points are protected with a cover which can be easily removed and allows the points to be adjusted even when the magneto is in use.

The distributor is driven by spur gear from the spindle and collects current from the armature by the usual form of carbon brush. The magneto leads are screwed directly to the collector segments.

This bald description of the design of the Scintilla magneto will probably be explicit enough to show the extreme simplicity and robustness of the parts.

The writer had one of these magnetos specially taken down for him and the few number of operations to strip the mechanism was enlightening.

Removing one screw allows the setting of the timing lever to be set in any one of its eight positions.

Taking out two more screws allows one to remove the armature cover, and removing two further screws allows one to lift the armature away from the pole shoes which are cast integral with the aluminium casing of the magneto.

Undoing a clip allows one to remove the double distributor blocks and four more screws keep the distributor and its gears on the casing. One can thus see that replacing a faulty part, in the remote contingency of this being necessary, is very easy on a Scintilla.

Another feature of particular interest on this magneto is the automatic advance, the particular appeal of which lies in the fact that this automatic advance mechanism is fitted in between the poles of the rotating magnet and therefore in no way increases the overall dimensions of the magneto.

This mechanism has two brass weights which are disposed parallel to the axis of the spindle. These, centrifugal force tends to fling outwards. This they are prevented from doing by a hinge at one end and compression springs at the other. These compression springs are so set however that at higher end speeds the weights can move out slightly, and in so doing, through cranks, they rotate the cam in relation to the magnet thus causing the break in the contact-breaker to occur earlier.

VICKERS-SUPERMARINE.

The Supermarine Napier S.5 which set up the British Speed Record of 319.57 miles per hour at Calshot in 1928 has been reconditioned at the Supermarine Works of Vickers (Aviation) Ltd., and has been delivered to the Marine Aircraft Experimental Establishment, R.A.F., at Felixstowe, for use there by the High Speed Flight.

This machine was also one of the British Schneider Trophy team of 1929. Also we shall do well to remember that when the contest was held at Venice in 1927, the two Supermarine S.5 racing seaplanes took first and second places and were the only machines that completed the course.

Vickers Ltd., are once more identified with an outstanding achievement, for R.100 is a Vickers product. Its original construction was financed by that firm, who own the whole of the cash capital of the Airship Guarantee Co. Ltd., the constructors of the ship.

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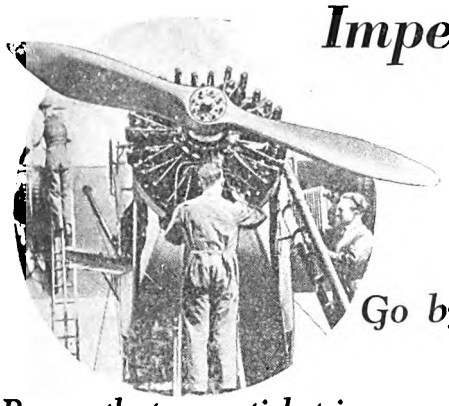

THE latest statistics shew that Imperial Airways Expresses are maintaining an all-the-year-round dependability of well over 90%. One of the secrets of this reliability is the system of overhaul and maintenance. Before each flight the great 'Silver Wing' air-liners are carefully examined and overhauled by Imperial Airways engineers. You are as sure of reaching your destination on time in an Imperial Airways 'plane as it you travelled by Pullman, and much quicker.

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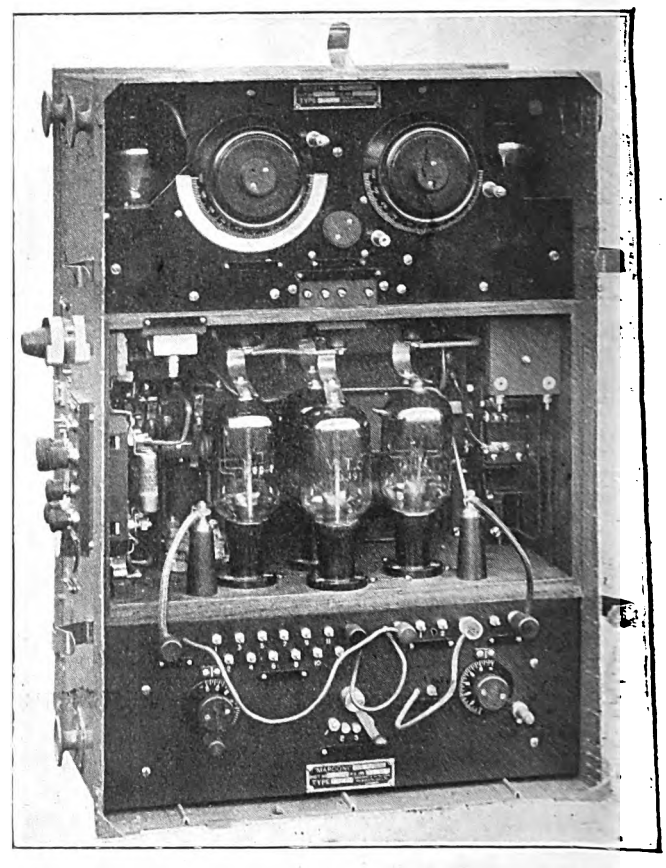

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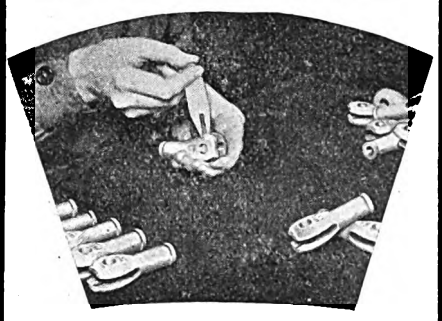

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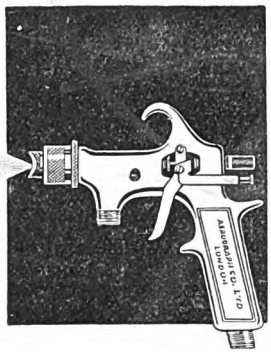

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The directors are: A. G. Hemsley, 1, Melina Place, St. John's Wood, N.W.8, solicitor. Lt.-Col. I. A. E. Edwards, Downe Hall, Downe, Kent (director of National Flying Services Ltd.). G. E. F. Boyes, 22, Hans Crescent, Knightsbridge (director of National Flying Services Ltd.). Sir Albert Ball, Kt., Sedgeley House, The Park, Nottingham. N. I. Smith, 41, Half Moon Street, W. (secretary of National Flying Services Ltd.). Secretary: N. I. Smith. Solicitors: Halsey Lightly and Hemsley, 32, St. James's Place, S.W.1. The registered office is at Grand Buildings, Trafalgar Square, W.C.2.

SATISFACTION.

THE GLOSTER AIRCRAFT COMPANY LTD.—Satisfaction in full on July 7, 1930, of mortgage dated Dec. 4, 1923, relating to land and two messuages known as "Ambleside" and "Fairmile," at Brockworth, Gloucester, and registered Dec. 10, 1923. (According to the register of mortgages, the mortgage registered Dec. 10, 1923, originally secured all moneys due or to become due from the company to the Midland Bank Ltd.)

PERSONAL NOTICES.

MARRIAGES.

JORDAN—EVANS.—On July 26, Reginald Charles Jordan, R.A.F., to Anne, youngest daughter of Mrs. A. L. Evans, of Perth, Western Australia.

SCHREIBER—DENT.—On June 26, at St. Margaret's, Westminster, John S. Schreiber (Flg. Off., No. 601 (County of London) Squadron, Auxiliary Air Force), eldest son of Capt. and the hon. Mrs. Schreiber, of Marlesford Hall, Suffolk, and Maureen, daughter of Mr. C. H. Dent, of 20 Draycott Place, S.W.

FORTHCOMING MARRIAGES.

HAYTER—BRADFORD.—The marriage arranged between F. C. Edney-Hayter, R.A.F., and Flylda Muriel, daughter of Mr. H. Bradford, of Addington House, Reading, will take place at Sonning-on-Thames on Aug. 23.

HILL—JONES.—The engagement is announced between Reginald William Hill, Flt. Lt., R.A.F., and Mary Constance, only daughter of David Jones, Esq., J.P., of 39, Hyde Park Gate, S.W.7.

BIRTHS.

HALLIOTT.—On July 30, at Hounslow, to Betty (*née* Huggett), wife of Flg. Off. E. Halliott, R.A.F.O.—a daughter.

KENNEDY.—On July 24, at Sion House, Longueville, Jersey, to Dorothy, wife of Flt. Lt. B. B. Kennedy, R.A.F.—a daughter.

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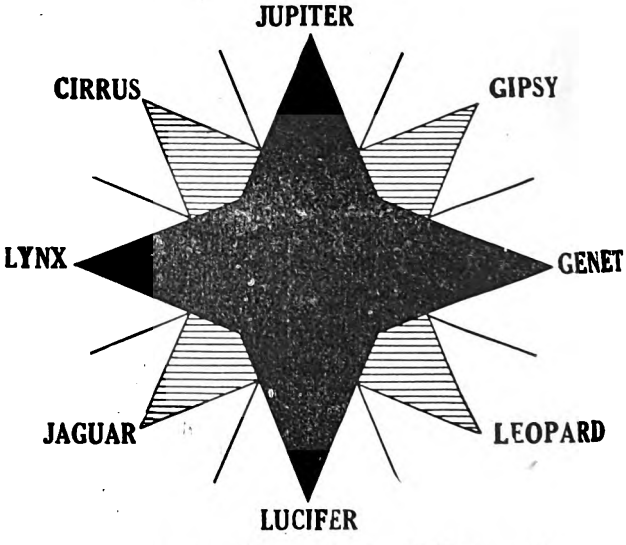

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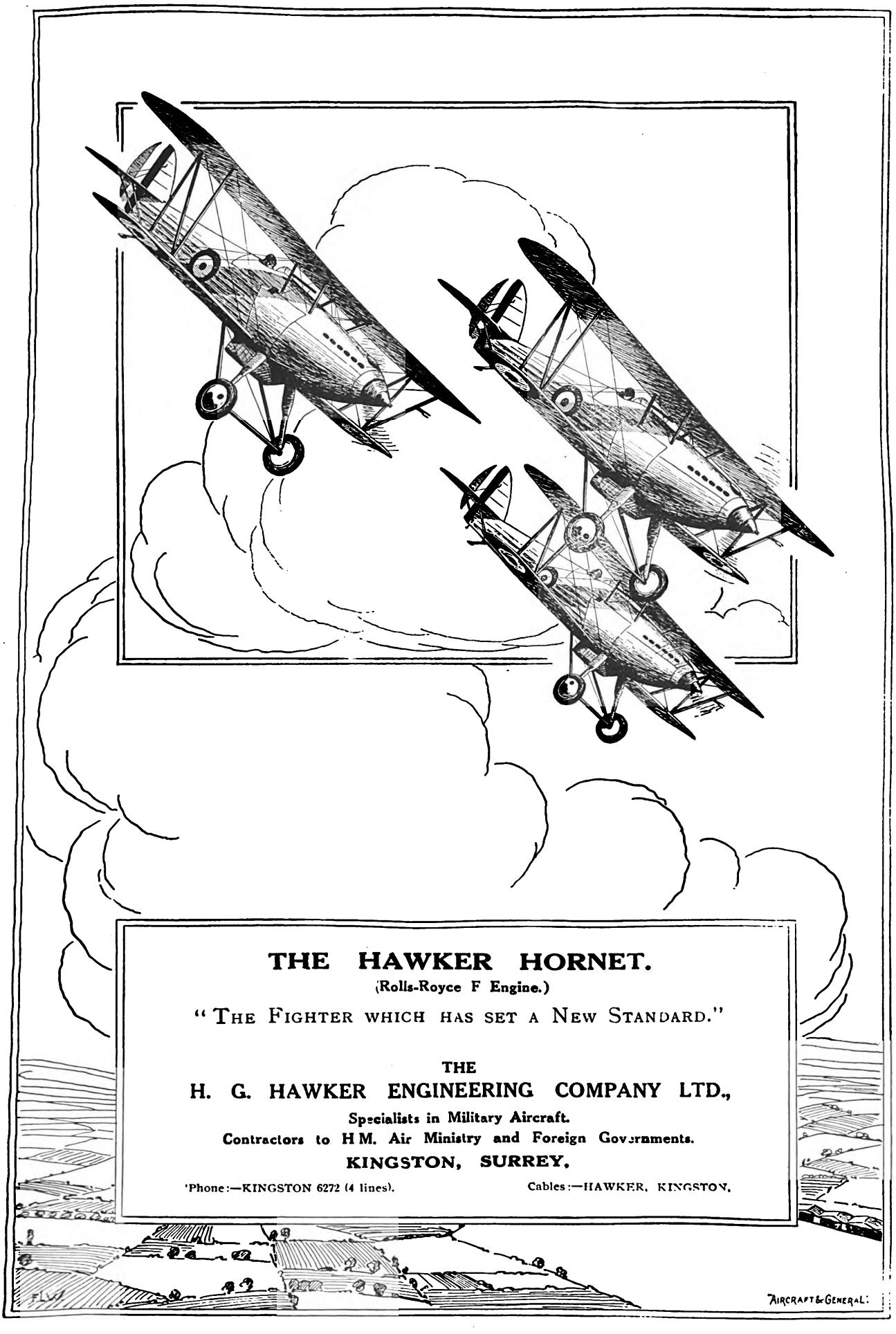

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TYPE TEST
AT
FULL THROTTLE
ON THE
"Bristol"
JUPITER GEARED
ENGINE, SERIES XIF

A Type Test to Air Ministry Schedule, but at full throttle instead of the usual 90 per cent., has been completed on a "Bristol" Jupiter, Series XIF Commercial Type Geared Engine.

THIS IS UNDERSTOOD TO BE THE FIRST FULL THROTTLE TYPE TEST CARRIED OUT ON AN AIR-COOLED AERO ENGINE, AND WAS COMPLETED IN NON-STOP RUNS OF TEN HOURS EACH AT 2,000 R. P. M., AT AN AVERAGE POWER OF 520 B.H.P.

"No trouble was experienced with the engine throughout the whole test," states the official report, whilst on inspection after stripping-down on completion it was stated :—"The condition of the engine is extremely good."

The Jupiter is designed and manufactured by

THE BRISTOL AEROPLANE CO. LTD., FILTON, BRISTOL.

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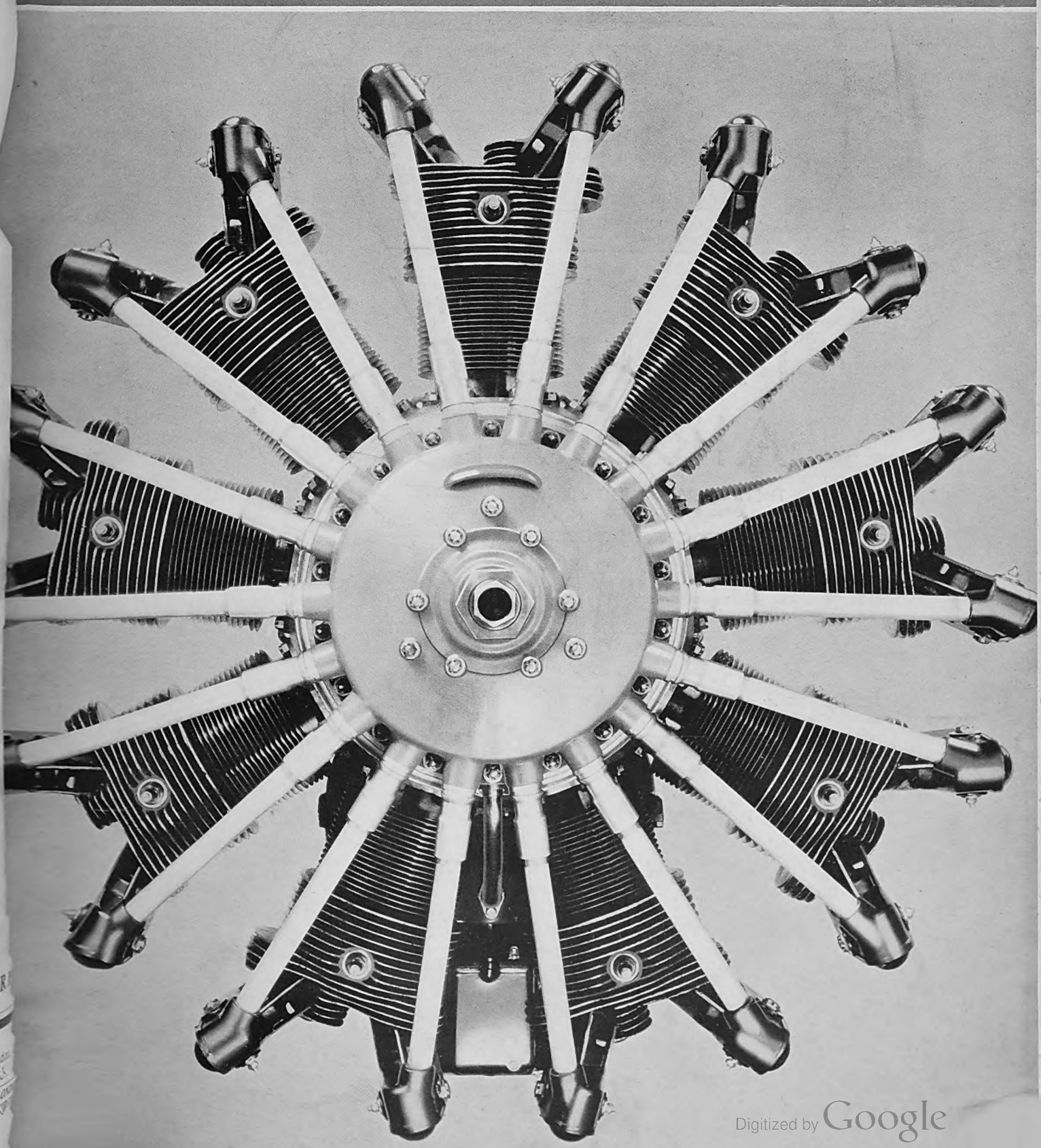
Edited by
C.G.Grey



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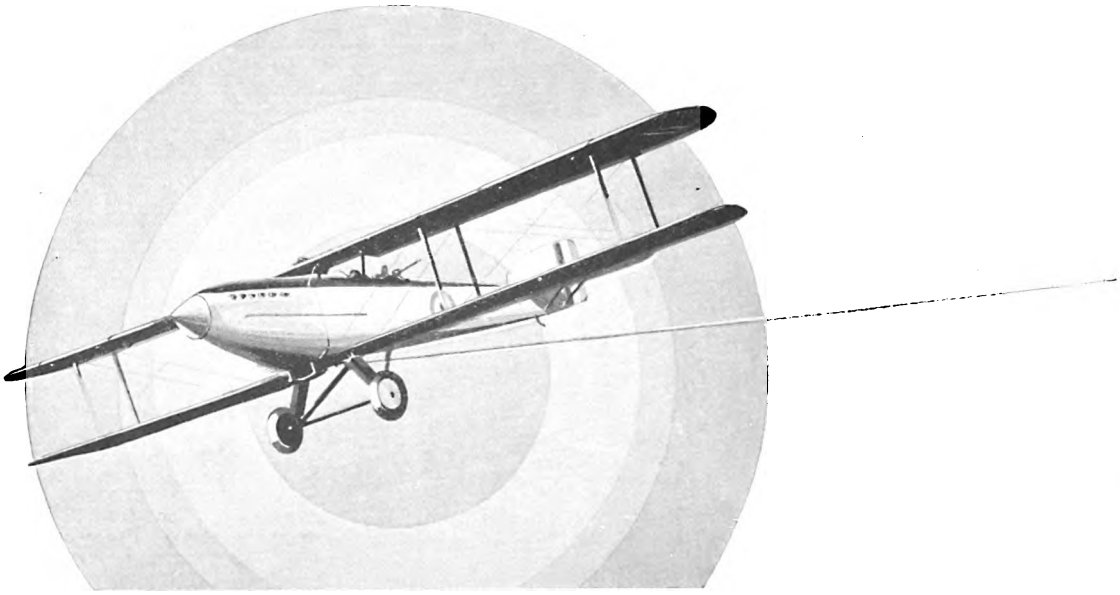

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AUG. 13, 1930.

THE AEROPLANE

Incorporating Aeronautical Engineering

VOL. XXXIX No. 7.

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ON THE CHALLENGE DE TOURISME INTERNATIONAL.—IV.

There is one consolation in our not winning the International Touring Competition, as related in detail hereafter, and that is that our friends in Germany have won. That fact guarantees that the competition will again be properly organised when it next takes place. Also, it will give us all the pleasure of again spending a few days with our friends in Berlin. If we could not win the competition ourselves, at any rate we will not grudge our thoroughly sporting competitors in Germany the winning of it.

CONDOLENCES.

At the same time, we English would like to express our regret that our equally sporting competitors from France, Poland, Spain, Switzerland and Belgium did not show up better in the final results.

Nothing finer in the history of the Sport of Aviation has been done than the entry of all those Polish machines in the Competition. Poland is not a rich country, and though individual Poles have distinguished themselves highly in art and science, Poland is not generally regarded as exactly a leader in mechanical progress. Therefore, the production of so many aeroplanes, of which so many were of quite original type, is all the greater credit to a country which has so recently found its independence.

Certainly some of those Polish machines gave English aviators, and especially English designers, cold shivers to look at. We are not accustomed to having wings fixed to the fuselage with minute bolts,—so small that an onlooker at Heston described them as sticking their rear spar down with drawing-pins. But the fact remains that the machines stood up to the severe tests which were put upon them.

And there was no doubt about the quality of the Polish pilots. Although those little monoplanes which were essentially of Polish design caused a certain amount of amusement and were nicknamed in a friendly way the "Blind Mice," nevertheless there is quite a great deal to be said for that type of aeroplane. The design is in essence very like the A.N.E.C. and the Wee-Bee which were designed by Mr. Shackleton (now with Mr. Larkin in Australia) and won the Light Aeroplane Competition at Lympne two years running. Also, they have a family resemblance to the Monocoupe, with which Mr. John Carberry did so well in the European tour. There are distinct possibilities about this type.

Another group of competitors who deserved particular credit are the Spanish representatives. Hitherto Spain has not been regarded as a force in aircraft design, but we must not forget that Spain was noted for its steel-work when England was still in a state of barbarism. And magnificent metal-work is still done in Spain to-day,—quite apart from the fact that we import much of our finest raw material for our own steel from Spain. Therefore there is no reason for surprise at the good workmanship in their aeroplanes which were entered for the European tour. And our gallant Spanish competitors need not by any means be disheartened at not winning any of the prize money this year. We can only wish them better luck next year.

Incidentally, the fact that Spain came into the competition this year was really a very good thing for the competition. Everywhere, except in Spain, the weather was wet and comparatively cold, but just on that one stage from the Pyrenees to Seville and back to Barcelona the weather was really hot, and it found out the weak spots in many of the engines. Apparently our engines were able to stand up to the over-heating, but what happened to them showed that designers must consider very carefully the arrangement of their cowling for machines which have to be used in hot climates.

CONGRATULATIONS.

Having thus sympathised with the losers, we may turn to congratulate the winners.

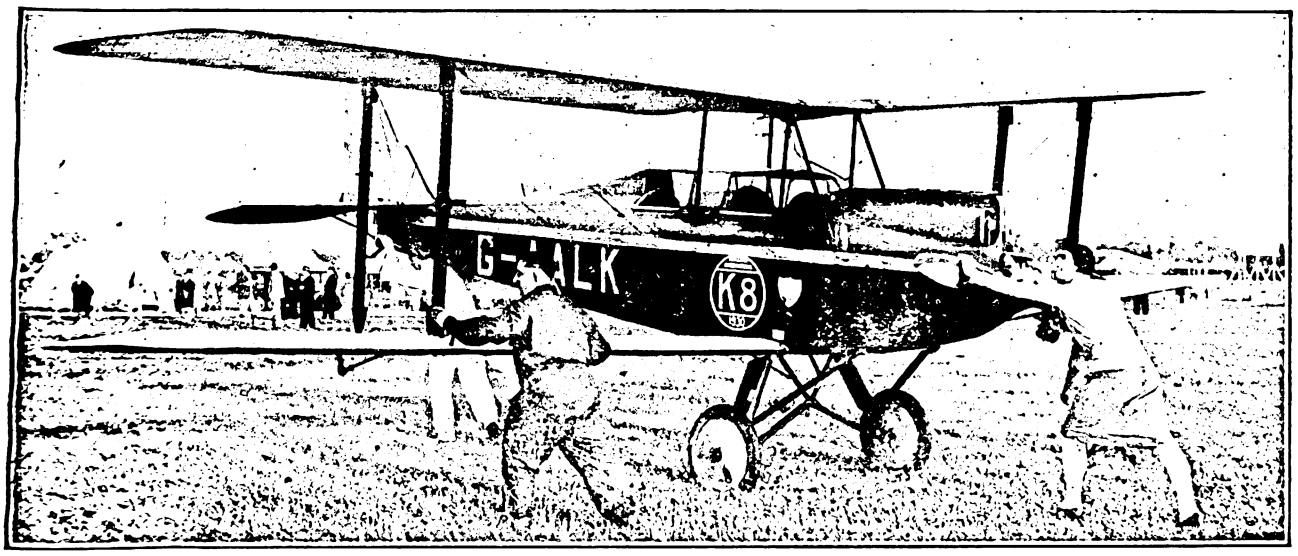
The fact that the whole competition as well as first place in the light class was won by Herr Morzik, who also won last year's competition, is not merely a coincidence. It is the well-deserved result of magnificent flying, skilful navigation, excellent organisation, and general minute attention both in the design of the machine and in the handling of it to all the rules of the competition. Both Herr Morzik and the B.F.W. Company, who designed and built the winning machine, deserve all the prizes and all the congratulation which will come to them.

TECHNICS.

There is particular interest about the B.F.W. firm. The

"THE FEMALE WOMAN IS ONE OF THE GREATEST INSTITOOSHUNS OF WHICH THIS LAND CAN BOAST."

(Artemus Ward.)



ANOTHER WOMAN WINNER.—Miss Winifred Spooner, who flew so consistently well that she gained several places and finished fourth. She wins first prize in the heavy category, which included all British entries. Mr. Amos (in white) is here seen helping her in after the consumption test.

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technical work of the B.F.W. firm is run by Doctor Madelung, who has for about ten or twelve years been recognised as one of the leading aerodynamic scientists of Germany, and by his brother-in-law, Herr Messerschmitt, who first came into prominence in connection with the earlier gliding experiments on the Wasserkuppe.

Herr Madelung was taken to America by the United States Advisory Committee for Aeronautics very soon after the outbreak of Peace and did most valuable work there. He was very largely responsible for the installation in America of the first high-pressure, or variable density, wind-tunnel, about which so much has been heard in the last ten years that we in this country are actually building one ourselves.

Herr Messerschmitt, on the other hand, is much more of the out-of-door experimenter. He, more than anybody else, was responsible for the introduction of the type of glider with an enormously wide span and an extraordinarily narrow chord, which has put up such amazing soaring performances of late in the hands of Herr Kronfeld. The result has been that while most countries talk about their wings in terms of "pounds per square foot," apparently regardless of the shape of the wings, the Germans are beginning to think in terms of "pounds per foot of span." This is a matter of which a great deal more will be heard in the future, for various reasons connected with the placing of engines as well as actual loading.

In the very earliest days of flying we used to think quite a great deal of aspect-ratio,—which means the ratio between the span of a wing and the chord. Of late years, thanks very largely to the imbecility of War-time design, we have been thinking in terms of "pounds per square foot," and seem to have lost sight of aspect-ratio altogether. This competition, which has been won by the B.F.W. machine, ought to bring us back to some of our old ideas, for the outstanding feature of the B.F.W. machine is their enormous span in relation to their chord.

The class of machine with which Herr Morzik won the contest is one example, but much more important from the point of view of Commercial Aviation all over the World are the new B.F.W. transport machines with high-powered engines which are now being used experimentally by the Luft Hansa. If they are anything like as successful as the early examples seem likely to be, we shall find more than enough justification for the time which the Youth of Germany have spent on their gliding experiments. And perhaps we here, instead of wasting time on aerial tobogganing, may set to work to learn something ourselves from gliding, in which game we can experiment with aerofoils and judge the results without being confused by having an engine mixed up with the performance.

The Hanging Motor.

Another technical point on which our German friends are to be congratulated is the success of the inverted engine, called by them "The Hanging Argus." This success is more than usually interesting to the present writer. For years and years one has been advocating the adoption of the hanging engine. Right away back in the earliest days of Aviation, about 1910, when M. Grégoire, the famous French car designer, introduced the Gyp inverted engine at one of the earliest Paris shows, one recognised its value for aircraft. The type was never developed and all kinds of absurd objections were raised to it.

A good many years ago one pointed out its obvious advantages for light aeroplanes, and still nothing was done about it. Four or five years ago one of the biggest aero-engine manufacturers in this country asked for an opinion about what type of engine would be most likely to be successful even in high powers, and then one strongly advocated the production of an inverted V-type air-cooled engine of about 300 to 400 horse-power as well as a smaller in-line type of about 150 h.p.

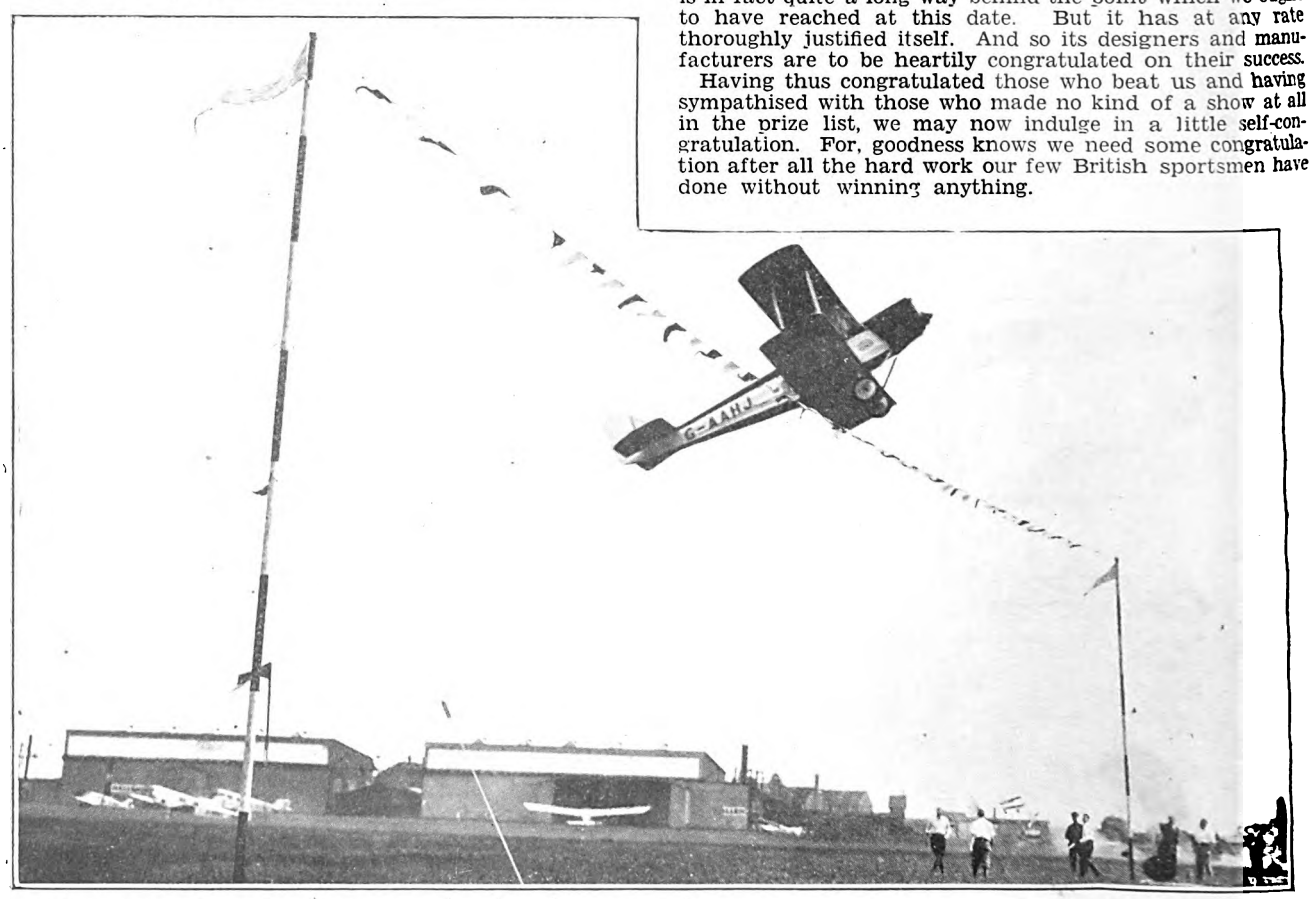
Since then, at intervals this paper has frequently referred to the advantages of an upside-down engine. The only people to do anything about it in this country have been that pre-eminently enterprising firm the De Havilland Aircraft Company Limited. And the inverted Gipsy engine, known as the Gipsy III, has been an immediate and immense success from the first day when it was introduced to a waiting public.—The coincidence that the Gipsy should perfect the early attempt of the Gyp is curious, for the Gipsy (upright) was so-called before its designer had ever heard of the Gyp.

In the meantime our friends in Germany have gone quietly to work and have also introduced an inverted engine. The Hanging Argus was shown at the Aero Show in London last year. Nothing much has been heard about it since. And now, it has come out in the International Tour and has taken the three first places, in the B.F.W. of Herr Morzik, the Klemm of Herr Poss and in another Klemm piloted by Herr Notz. So, once more, the ideas ventilated in The Aeroplane have been justified years later.

Here one may say that the B.F.W. monoplane is a long way from being one's ideal light aeroplane. And still less does the Klemm come up to the standards which one would desire. But they both proved themselves to be thoroughly good aeroplanes, and they should show us a good way on the road towards further improvements.

Also the Argus engine, good as it is, and thoroughly as it has vindicated one's own personal views of five years ago, is in fact quite a long way behind the point which we ought to have reached at this date. But it has at any rate thoroughly justified itself. And so its designers and manufacturers are to be heartily congratulated on their success.

Having thus congratulated those who beat us and having sympathised with those who made no kind of a show at all in the prize list, we may now indulge in a little self-congratulation. For, goodness knows we need some congratulation after all the hard work our few British sportsmen have done without winning anything.



OVER THE STICKS.—Mr. Thorn pulling his Avian (Hermes) over the line quite steeply in the take-off contest. This pair flew well, but lost points on the ground.

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BRITISH RELIABILITY

FINE RECORD OF NAPIER ENGINES

The general reliability of British aero engines has frequently been demonstrated, but the world generally does not realize how year in and year out long Service flights are undertaken with such complete immunity from trouble that the intrinsic value of the performance is overlooked. There are certain flights now carried out by the Royal Air Force each year which are not paralleled in any foreign air service, and Mr. H. Montague, the Under-Secretary of State for Air, has performed a useful service to British aviation in general by drawing public attention to them in Parliament during the debate on the Air Vote.

It is not without significance that in every one of these flights the power unit was the Napier-Lion, an engine which is giving unequalled service not only at home but also abroad, in every sort of climate, hot and cold.

THE TIMES TRADE AND ENGINEERING SUPPLEMENT, APRIL 26th 1930

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Our Noble Selves.

From the English point of view, the outstanding feature of the whole competition is the splendid performance of Miss Winifred Spooner. She has now definitely proved herself to be the best woman aviator in this or any other country.

In saying this, one is using the word "aviator" in its widest sense. Not only has she proved herself to be a first-class pilot in the usually-accepted sense as meaning one who handles an aeroplane with skill and ability. Besides that she has proved herself to be a first-class navigator, because with her comparatively slow machine, which is actually the Moth in which Mr. Broad won first prize in the Heavy Category last year, but with a new Gipsy II engine, she could not have maintained the speed which she did, unless she had flown quite a perfect course.

Also she has proved herself to be a first-class maintenance-engineer. All the other competitors carried trained mechanics with them who knew every nut and bolt in their machines and engines. Or else they themselves were first-class air-mechanics, and relied on their passengers for something else, such as navigation. Miss Spooner had no such advantage. Her first passenger had to resign at Heston, on the second stage of the journey, owing to a poisoned hand. And one doubts whether he would have survived the whole course in any event because he is not a small man, and he could scarcely have stood being cooped up in that small cabin.

From Heston all the way over the dangerous stages of the Pyrenees and across Spain and across the Gulf of Lyons and right away to the finish, Miss Spooner had with her Mrs. Alan Butler, who joined her on the spur of the moment at Heston and proved herself to be one of the world's finest sportswomen.

A Gallant Pair.

Mrs. Butler deserves special praise for this performance She is a young woman with a charming family, an admirable husband, and all the money that anybody can really want in this world and yet she was game to take on a distinctly dangerous job of this kind, in which she was bound to play only a secondary part, for sheer sportsmanship.

There is no particular limelight turned onto a passenger in a job of this kind, and Mrs. Butler has been practically ignored by the daily press, which is probably precisely what she would desire, judging by what one knows of her. All that one gets for being a passenger on such a flight is a lot of discomfort, a lot of knocking about, quite a good deal of hard work, the continual discomfort of getting up at horrible hours in the morning and getting to bed whenever fate allows, with an immense amount of physical fatigue and mental strain, and there is nothing at the end of it for the passenger, mechanic, navigator or what-not.

So, this paper being more or less a family affair, in that its various tens of thousands of readers are all very much on the inside of the aeronautical family, one has no hesitation in giving Mrs. Butler this much publicity for one of the finest sporting actions that anybody has ever put up.

But, to return to Miss Spooner: before the start of the Rundflug, one watched her at work on her machine in the airship-shed at Staaken. She showed then that there was nothing about the machine that she did not understand, and nothing that she could not do to it. At the same time, she never set herself up as an authority. Before doing anything vital she always referred to the ubiquitous Mr. Beaser, one of the De Havilland engineers who was there to look after all and sundry Moths in the Competition.

A Valuable Aide.

Here one must pay a little tribute to the work which Mr. Beaser did. There seems to be nothing inside or outside of a Moth or a Gipsy engine which he does not know by heart. And he seems to be able to put his finger on exactly what is wrong.

Just as there are some doctors who can diagnose a case practically without any examination, so Mr. Beaser seems to be able to put his finger on the spot at once if there seems to be anything funny about a Moth or its engine.

OUR PRIZE-WINNER.—A bad impression of Miss Spooner at Berlin.

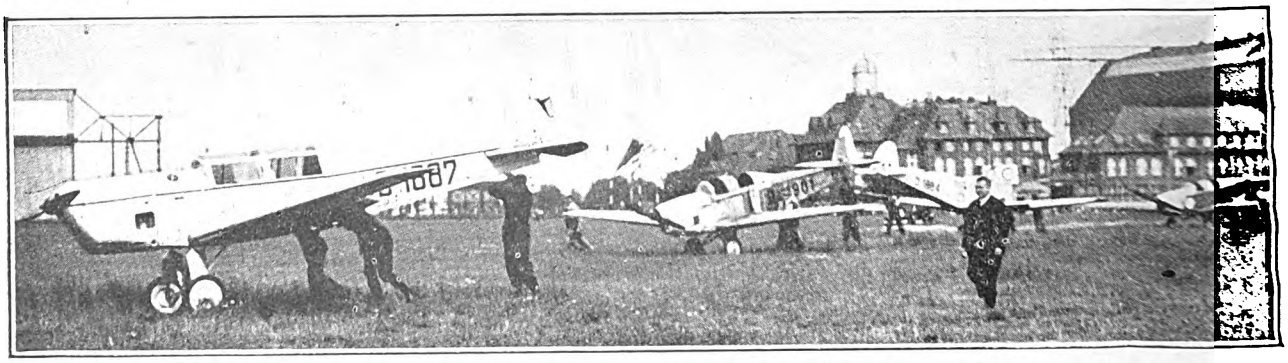
Miss Spooner's brand new engine was running rather rough. She changed all the plugs and adjusted them herself. And then Mr. Beaser came and checked over everything and adjusted the magnetos slightly. After that, he said that the engine would probably run itself in and get better as it went along. Judging by the results, it obviously did so. And to Mr. Beaser must go a good deal of the credit for the excellence of the performance of the winning Moth. He is a worthy member of that group of air-engineers in which Messrs. Weedon, Amos and Ford have already made a name for themselves.

Thoroughness.

Miss Spooner's thoroughness in her preparations and her carefulness in everything she does suggests that her ancestors must be definitely of German origin, in spite of her claim to a parentage of Irish origin. In last week's account of the Rundflug Mr. Bradbrooke described how Miss Spooner was maltreating her undercarriage in practising landing. The way in which she won marks in the landing competition which put her into fourth place in the competition and gave her first place in the heavy class, shows how well she used the time at her disposal in just practising.

By winning first place in the heavy category in this International competition, by her excellent performance in the same competition last year, by her flying in Central Africa last year, and by her consistently good flying in this country and various parts of Europe, and in her handling of aeroplanes of various types for the past two or three years, Miss Spooner has definitely placed herself as our leading woman aviator. But, of course, no newspaper would think of presenting a few thousands of pounds to her for beating the pick of Europe's aviators in open competition. There is nothing about that foolish enough to attract the Press.

She has a rooted dislike of newspaper publicity, so she is not likely to be bought by any newspaper as an expert.



THE MODE OF 1930.—A B.F.W. M.23c (Argus), as flown by Herr Morzik, winner of the 1930 "Challenge de Tourisme" (left), and a Klemm L.25e (Argus), as flown by Herren Poss and Notz into second and third place. The picture shows the popularity of the type.

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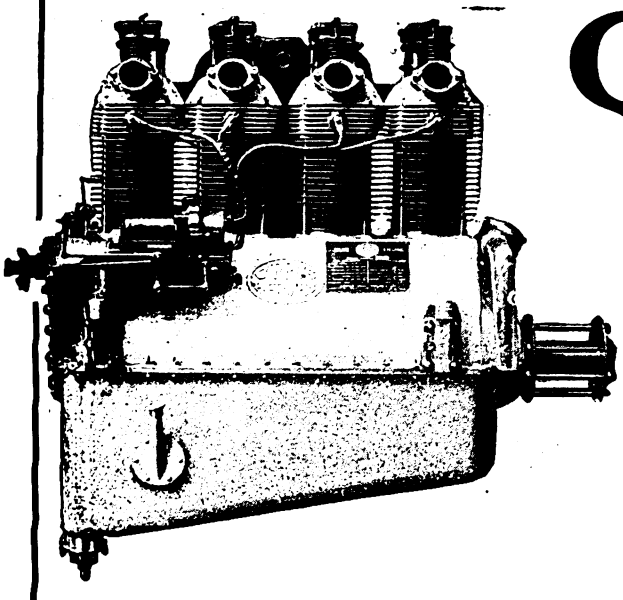
STERLING QUALITY of the HERMES ENGINE



Challenge International de Tourisme, 1930:

¶ **FULL MARKS for REGULARITY**

Mr. S. A. Thorn, piloting a HERMES "Avian," gained full marks for regularity throughout the 4,700 miles circuit of Europe and won the prize presented by the people of Paris to the pilot of the first machine to arrive at Orly. Third machine to arrive at Berlin on completion of the tour.

¶ **FULL MARKS for FUEL CONSUMPTION.**

Mr. S. A. Thorn—HERMES "Avian" and M. Bajan—HERMES R.D.W.4 gained full marks for petrol consumption with standard carburetter setting as used throughout the tour.

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nor is she likely to go on the music-hall stage. But those who know what real flying is, acknowledge her to be the equal of the best of our men pilots where real practical flying is concerned as distinct from trick flying, in which she does not indulge. Those furious feminists who claim that a woman can do anything that a man does at least as well and probably rather better have a better argument in Miss Spooner than they have in any other woman flyer who has shown up so far.

Horsemanship and Airmanship.

There is just one thing which Miss Spooner does better than piloting an aeroplane, and that is sitting on a horse. She was brought up by her brothers among horses and on horses, and as a horsewoman she is just about in the same class as she is among aviators. So she is another proof of the theory which was put forward in the early days of flying, that there has never been a first-class horseman who had not the makings of a good pilot of an aeroplane.

There are plenty of good horsemen who are bad horse-masters, and there are plenty of good pilots who are very bad aviators in other ways. But the man or woman who can ride well can almost invariably fly well. And a nation of horsemen will always provide an unlimited supply of pilots. That is why you get so many Australians who are also first-class pilots. And it is why those nations which are not horse-riding people by breeding hardly ever produce really first-class pilots. [Since these notes were composed the sad news has been published that the stables of her brother, Captain Frank Spooner, at Wokingham, have been burnt, and that four of his polo-ponies have been burned to death. This happened during Miss Spooner's absence in Germany, and one knows that all will sympathise with her in the loss of her four-footed friends.]

Before coming to the next section of this article one would like to extend to Miss Spooner on behalf of all those who are concerned for that which is best in British aviation the heartiest congratulations on her splendid performance, and best wishes for many future successes.

A Near Thing.

The other British representatives also deserve their share of congratulation and of sympathy. Mr. Broad, by his consistently good flying all round the course fully maintains his position as one of the two or three finest all-round aviators in this country,—and that means one of the best in the world. If we English had taken this competition a little more seriously Mr. Broad would have won it. He might have had marks for a cabin if only the top of his machine had been enclosed. And with wheel brakes, which could have been fitted at the last moment, he would probably have picked up enough marks to have put him in the first three, or even to have won.

As Mr. Bradbrooke's article, which appears hereafter, shows, Mr. Broad lost three marks in the petrol-consumption test. And he lost marks for ease of starting, where Miss Spooner got full marks, which seems to indicate lack of careful preparation an hour or so before the test.

In fact, if we had really set about winning this competition and had built two or three machines specially for it, instead of merely putting in machines which were built last year, we could have made an absolute certainty of it. But that is just our English way. We still insist on regarding international affairs of this sort as a sport, and not as a business proposition. At the same time one admits freely that the De Havilland firm owe quite a goodly portion of their business success to the finely unbusinesslike sporting spirit in which they have done so much for British Aviation when wealthier people, in and out of the Trade, have done nothing.

Considering how little interest was taken in the competition by all the rich sportsmen who actually live in and get their living out of this country, the greater credit is therefore due to those sportsmen who did take a hand in the show.

Sheer Sportsmanship.

There is a point hereabouts which deserves to be noticed. That is, that the English entries came quite distinctly from the sporting class and not from the commercial class in this country.

First of all, there was the Hon. Lady Bailey, who belongs to one of the best old Norman-Irish sporting families, the Westenras. Her entry was purely a sporting effort. She stood to make nothing worth while out of it even if she had won. And she never looked like having a chance of winning in any case, for she was flying an old and slow machine. At Pau she lost all chance of even getting into the first dozen, through having to come back when half-way across the Pyrenees and so losing a whole day's marks. But she went on round the whole course just the same. Hers was a fine example of pure sportsmanship.

Mr. John Carberry, to give him his strictly legal name, happens, in spite of himself, to be Baron Carbery in the peerage of Ireland, and he belongs to the Evens-Freke family, who are distinctly of the sporting sort. He also stood to gain nothing in the competition. He went to a good

THE INTERNATIONAL PRIZE-WINNERS.—Left, Herr Morzik, first prize, who also won last year, and right, Herr Poss, second in the General Classification.

deal of expense, and he went to still more inconvenience, and he thoroughly deserved the sixth place in the competition and second place in the heavy class into which he worked himself.

Naturally one does not agree with him in buying an American aeroplane in which to compete. But one does admit that possibly the performance put up by him with this machine may influence our own aircraft designers in the direction of making their aeroplanes more comfortable, and fitting them with wheel-brakes to make them safer and more convenient to handle.

There are heaps of ways in which Mr. Carberry's machine could be improved. But there are quite a lot of things in it which would improve any British aeroplane if they were embodied in our designs. And to this extent Mr. Carberry deserves our thanks for being unpatriotic.

Mr. Butler, who unfortunately was disqualified, is also, like his wife, an example of the best type of sportsman. There is no earthly reason why a young man with more money than he can possibly spend on himself, and with all the vast business responsibilities which he, unlike most rich young men, has chosen to assume, should go chasing round Europe under the most dangerous and uncomfortable conditions. He could afford to pay half a dozen first-class pilots to go and do these things for him. He could have afforded to put up a team which would have been absolutely unbeatable. But he chose to go and do the job himself. And, unfortunately, he chose to do it too much in the sporting spirit.

If he had been a little more commercial-minded and had carried that spare airscrew which was allowed by the rules he would not have been disqualified and he would have put in a very good bid for one of the leading places. But certainly his was a magnificent effort. And one only hopes that for the next touring competition he will join a little mere low commercialism with it, and will make quite sure that either he or one of his paid pilots does get first place. That only means spending a little money on building two or three machines which will absolutely stretch the rules to their very last minute.

Trade and Sport.

The sixth competitor, Mr. Thorn, was definitely a commercial entry. He and his machine, an Avro Avian, were entered by Cirrus Aero-Engines Ltd., just to demonstrate the Hermes engine. And one is happy to record the fact that the Hermes entirely justified the faith which was put in it.

Mr. Thorn, along with Mr. Butler and Mr. Broad, were at the head of the hunt the whole way round Europe. He proved himself to be quite in the first rank as a pilot and navigator. And the Hermes engine proved itself to be in the front rank of light aero-engines.

The Avian was a standard machine, it had no cabin, it had no wheel-brakes, and it had none of the other gadgets and accessories for which marks were awarded for quality or comfort in the competition. Therefore, obviously, in spite of his fine flight round Europe, he stood no chance at

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all in the final marks. And that alone made his flight all the finer as a sporting effort.

Credit must also be given to the Cirrus engine people for entering. The Cirrus firm, as regular readers of this paper know, was an offshoot of the old Aircraft Disposal Co. Ltd., which was formed immediately after the War 1914-18 to get rid of war-time aircraft material. The formation of that company itself was a sporting gamble, which was backed by the late Godfrey Isaac,—of the Marconi group,—and the people who had the handling of what used to be commonly called the Disposals Co. have always been sportsmen.

Two of the people who have been primarily responsible for this sporting outlook were Lieut.-Col. Darby and Lieut.-Col. Barrett-Lennard. Ever since Civil Aviation began, whenever there have been air races or flying competitions at any time, the Disposals Co. and, later on, Cirrus Aero-Engines Ltd. have always entered machines of one sort or another. Sometimes they have been old war-time machines faked up for the job. Sometimes they have been practically new machines built up of war-time bits and pieces. But always the list of entrants for the King's Cup Race, or for Aerial Derbys in the earlier years, have included the names of Col. Darby and Col. Barrett-Lennard. And to them, as sportsmen, credit must be given for these performances.

One can only hope that the excellent showing which was made by the Hermes-Avian will react to the good of the firm. When the Hermes engine made its first appearance in the King's Cup Race a little over a year ago it showed that it had extraordinary power, but, unfortunately, the first example of it, piloted by Mr. Stack, cracked up in the race itself. And since then various and sundry Hermes engines have suffered from the troubles which always come of squeezing more power out of an engine. Valves break, and pistons crack, and so forth.

One has no hesitation in mentioning these defects now, because the Hermes engine to-day seems to have got over all these troubles. No engine that was not first-class could possibly have got round the Circuit of Europe, driven as Mr. Thorn drove his Hermes. And the fact that it got through the hottest stages of the journey across Spain shows that it is over the worst of its troubles and may in future be regarded as one of our thoroughly airworthy engines.

Real Spartans.

The last of the entries, Mr. Andrews, with his passenger, Flt. Lt. Gibbons, who spent his leave in this strange fashion, also gave a wonderful exhibition of sportsmanship.

Most people in this country who are interested in Aviation know that the Spartan concern has been through rather a bad time during the past few months, and have only recently reorganised. The first of the new Spartans appeared in the King's Cup Race. And the firm's entry in the European Tour was therefore the more of a sporting effort.

The fact that the Spartan machine did not put up a better show was just an example of the rotten luck which may affect the most carefully-prepared efforts. The Spartan was, in fact, the only English entry which had wheel brakes, and on that score it might have made quite a good show in the final marks if only it had not lost practically all its marks in the actual Tour. And all those marks were lost in Spain.

The first thing that happened was between Saragossa and Madrid, when the machine ran out of petrol because a washer in the petrol filter was leaking. Of course, that looked like bad overhauling at the last stopping-place. But even the most careful people will occasionally overlook a minute leak, and even the best fixed of petrol joints will occasionally start to leak after flying for a while.

Anyhow, the machine had to land, and the pilot fortunately found a field even in that bad and rather deserted stretch of country.

Here one of the crew had to carry on a kind of miniature bull-fight all night whilst the other was searching for petrol. And be assured that petrol pumps do not exist along every mile or two of road in that part of Spain as they do in this country!

Finally petrol was found and, after spending a night out, the machine arrived in Madrid next day. But their flying time was taken as from their leaving the previous day, just as if they had been flying all night. So bang went all chances of good marks for reliability.

The next thing that happened to them was on the return trip from Seville to Madrid the next day. The temperature was enormously high and the cowling had only been arranged for anything which we in this country would be likely to have in the way of hot weather, which would anyhow be several degrees lower than a hot day in that part of Spain. The result was that the engine overheated considerably and the oil refused to keep cool, with the result that the oil pressure died away to almost nothing.

The result was that Mr. Andrews had to land because he was under the impression that their oil was getting scarce. They landed in a good-looking field, and here again they had to start a bull fight. This time the cattle were kept at a respectable distance by hurling Armour smoke-bombs at them. These, as regular readers know, are glass tubes filled with chemicals, which are dropped from aeroplanes when the pilot wants to make a forced landing. When the glass breaks a thick smoke is given off, and indicates the direction of the wind.

When Mr. J. G. D. Armour invented his landing indicators he certainly never imagined that they would be used to give an intimation of a prairie fire to keep Spanish fighting-bulls at a respectful distance. But this newly-discovered use for them may be found handy in future.

After sitting on the ground for a while and finding that the engine had plenty of oil and was merely suffering from the oil being too hot, Mr. Andrews and Flt. Lt. Gibbons took off again and safely reached Madrid, only to find that they were three minutes, only three minutes, outside the official time of closing of the control. That meant that they could not be timed in until the control opened next morning. And that added something like twelve hours to their time from Madrid to Seville and back and reduced their official speed over that stage to approximately 10 miles an hour. Which killed their hopes of any worthwhile marks for reliability in the Competition.

Their inability to arrive at Madrid on time naturally amused our Spanish friends, and the crew of the Spartan were thereupon nicknamed the Garrugas, which is apparently the term applied to bull-fighters who make bad mistakes in the arena. The Spanish air people were immensely sympathetic, but they could not help being humorous about it.

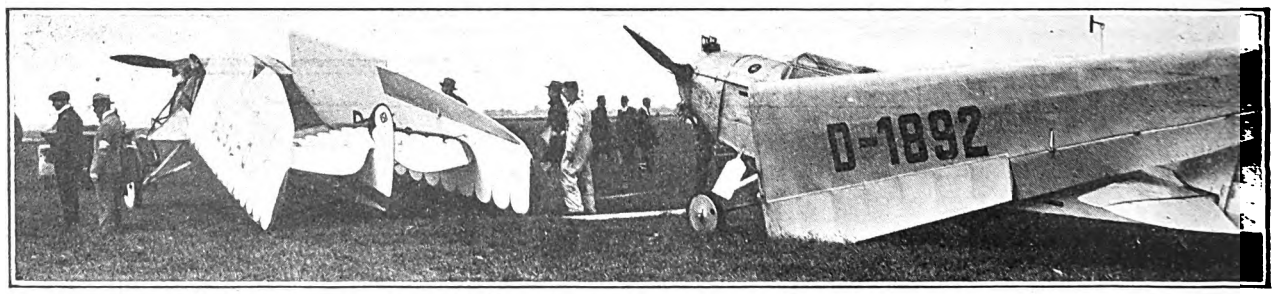
A Fine Effort.

From here on the Spartan crew gave a splendid exhibition of sportsmanship. They were hopelessly out of the competition, but they determined to show what they could do, with luck. So they set to work to catch up on the leaders, although they were two days behind them.

By flying all the hours that were possible in spite of weather and everything else Mr. Andrews picked up the leaders again at Posen, and was merely a matter of some minutes behind them at Berlin because of the difference in speed between his ordinary standard Spartan and the specially streamlined machines of Messrs. Broad and Butler. The last three days' flying of the Spartan definitely stamp it as being quite in the first class of British light aeroplanes.

In their gallant effort the Spartan crew were immensely helped by Lieut.-Col. Louis Strange, Managing Director of the Spartan Aircraft Co. Ltd. He also is an example of the first-class British sportsman. After winning high distinction in the War 1914-18 as a very young Lieut.-Col. commanding a Wing he retired to the Isle of Purback to farm, and after a very serious illness he came back into Aviation to form the Spartan Company, about two years ago.

He took to flying again and proved himself to be as good a pilot as any in the country. And his knowledge of the



THE PLOT ABOUT TO UNFOLD.—An Arado (left) and a B.F.W. M.23c after passing under the yoke. The folding of the latter, especially, is admirably simple and quick. The wing roots are cut away at the trailing edge to clear the ground.

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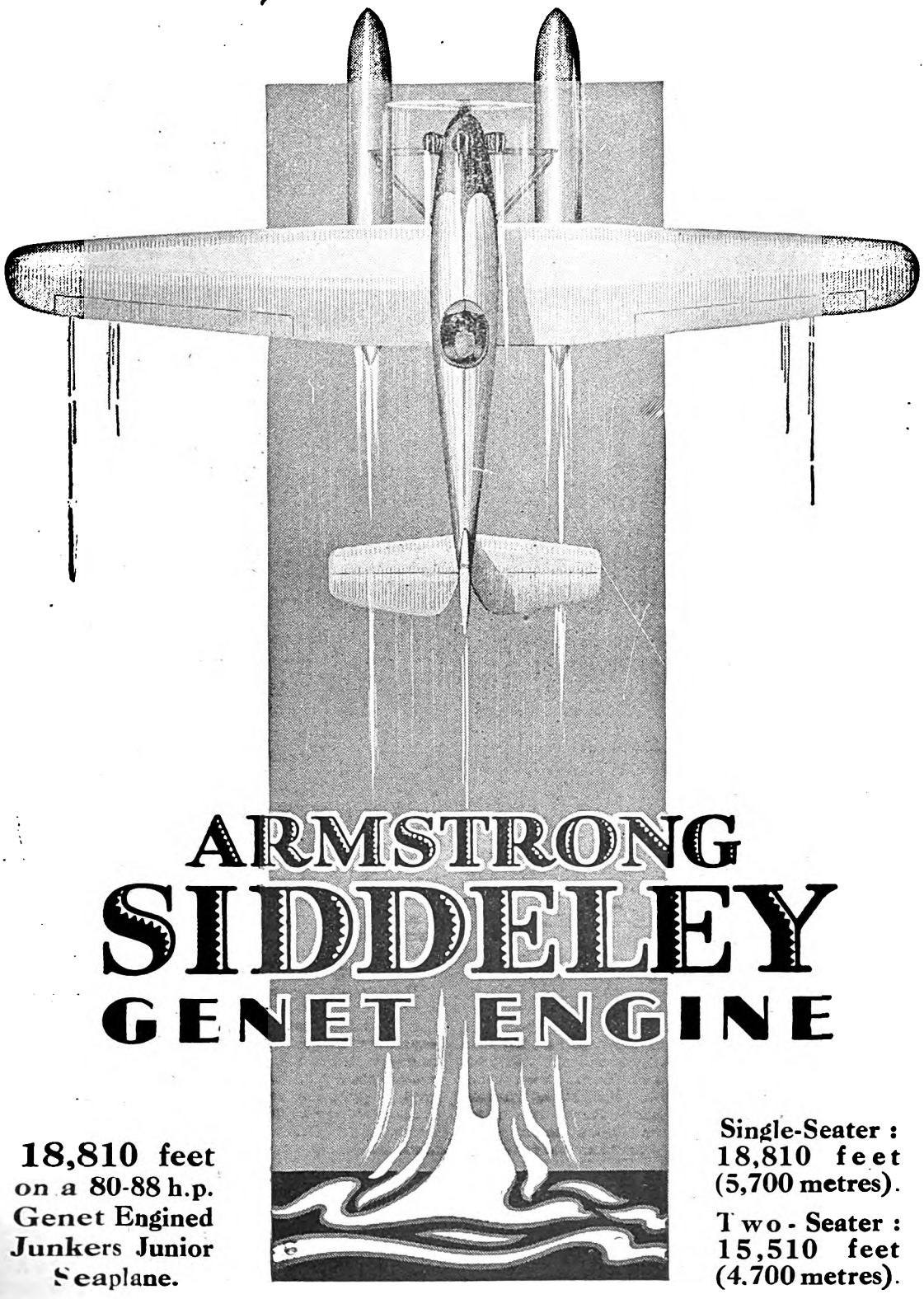
18,810 Feet



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pilot's point of view was of the greatest help to Mr. O. E. Simmonds when he started the Spartan business, with its ingenious system of interchangeable wings and other parts.

His adventures in the course of the Rundflug are worth telling. The pity is that he was not a competitor.

After the competitors had started from Berlin he flew direct to England to meet the Spartan crew at Bristol. Chasing along the South Coast in rather bad visibility he found himself over a very large field, which turned out to be Tangmere Aerodrome. Touring peacefully along he suddenly heard a familiar tat-tat-tat-tat overhead, and at the same moment spotted a large black and white target just in front of him. Looking up he saw one of the single-seat fighters of the squadron which is stationed at Tangmere diving apparently right on top of him, but really onto the target. He had evidently flown straight into the line on which the squadron at Tangmere do their practice shooting. As an experienced war pilot he side-slipped out of the way as quickly as possible, and did not land either to apologise or to make complaints. He just went on to Bristol.

After seeing Mr. Andrews off for France and Spain and doing some business at the firm's Works Col. Strange set off alone to meet the competing machines again at Lyon. Thence he accompanied it up to Prague. And when Mr. Andrews left Prague for Breslau and Posen Col. Strange tried to cut straight across to Posen so as to arrive in front of Mr. Andrews and get things ready for him.

The weather was very bad and the Spartan crew started late, because they were flying hard to pick up the leaders who were still a day in front. So the evening closed down before Col. Strange was able to get round the mountains, which he could not cross because of low clouds. So he landed on what looked like a dry stubble field in some unknown place in Poland.

The machine, after doing a slight rocking-horse act, came to rest up to its axles in mud. And within a few minutes it was surrounded by Polish peasants, none of whom could speak any known language. First of all they tried to pull him out of the machine, but he shooed them off and managed to prevent them from sitting on the wings and tail-plane. Then, when they found that he was resolved to stop in the machine for the night, they went and got him milk and bread, and a blanket to wrap himself in. They were a kindly folk.

Then he composed himself to doze for the night in the cockpit, while the peasants in hundreds stood round and chattered. About midnight, in a semi-conscious state, he suddenly heard somebody say in quite good English, "Well! This *is* a bloody bunch." Immediately he woke wide and asked who spoke English. A burly bearded peasant, looking exactly like all the rest, shouldered his way through the aforesaid bunch of people and said that he had spent two years as a prisoner-of-war in England and was delighted to meet an Englishman again.

Col. Strange explained to him what his troubles were, and after a while the English-speaking peasant persuaded all the others to go away so that the Englishman could sleep. When they had all gone he himself went and got a horse and a pair of traces from his own farm, pulled the Spartan out of the mud to a dry spot higher up, and stayed with Col. Strange till the first streak of dawn, when he was able to get off with a little trouble. Thereafter he arrived at Posen before anybody was about.

The sheds were all shut and there did not even seem to be a sentry. Half an hour or so later about a dozen soldiers turned up with a corporal, who, having lined them all up in front of the sheds, shook hands kindly with each and dispersed them to their duties round the sheds. Half an hour afterwards a sergeant arrived and the men all formed up again. He shook hands with the corporal and saluted each of the men, and again they went about their own affairs. Later on a lieutenant arrived, who shook hands with the sergeant and the corporal and saluted the men. And later again a colonel arrived who shook hands with the lieutenant and saluted the N.C.O.'s and the men.

By this time the doors of the sheds had been opened and Col. Strange was delighted to find inside the machines of Messrs. Butler, Broad, Thorn, and the other leaders. And, before they had come up from the city to see about starting in the morning, Mr. Andrews and Flt. Lt. Gibbons arrived. Their ambitions were fulfilled, and they were up with the leading crowd again. Thereafter the two Spartans had no particular adventures, but they certainly had had enough to last for quite a while.

Both the Spartans demonstrated the reliability of the Gipsy II engines. In spite of the boiling oil in Spain Mr. Andrews's engine gave absolutely no trouble. It actually did over 50 hours' flying in the course of the competition at full throttle, for, as the machine was slower than those of the leaders, who could afford to throttle down a bit, Mr. Andrews's only hope was to go full out the whole way, and the engine stood up to it.

A word must also be said for the machine which Col. Strange was flying. It bears the official lettering G-AAGO, and is known as GO, which it does. It was one of the original Spartans, built two years ago, and has all the interchangeable features which made the type famous. These are supposed by some people to detract from the efficiency of the machine, but they obviously do not. With Col. Strange and Mr. Simmonds on board and a hundred pounds of luggage as well it went from Berlin to London against the wind in seven hours' flying time at a steady 100 m.p.h., doing 2,000 r.p.m. all the way, and altogether it did fifty-two hours' flying in ten days without even changing a sparking plug. It got into small fields without stalling, and it got out again when over the tyres in mud, showing that there is nothing the matter with the lifting powers of its symmetrical wings.

Col. Strange says that GO is the most useful light aeroplane in existence and that he would not sacrifice its interchangeability for the slight increase in performance in some ways which might be got with other wings.

By-the-way,—there was another quaint incident during Col. Strange's last visit to Berlin. While there he met the famous Rittmeister Bölle, who commanded the historic Bölcke Jagdstaffel after that gallant soldier was killed, and the two had a great talk on war-flying. Then Col. Strange discovered that Rittmeister Bölle is the head of a firm which is to Berlin what the Express Dairy Co. is to London, and as Col. Strange has for years been the leader of the oppressed dairy-farmers of the Isle of Purbeck in their fights against the Milk Combine the talk drifted off into the production and distribution of milk. To such base uses do our star fighting-men come.

A Moral.

Taking it all round the result of the Tour shows that if we English are not the most businesslike people in the world where organising to win a competition is concerned we can at any rate put up a good sporting show. But one would emphasise the fact that putting up a good sporting show is not the best way after all of making money out of a new industry which promises immense fortunes to those who come out on top when the real boom arrives.

Therefore one would entreat all these jolly good sportsmen who put up such a fine show in this year's Tour of Europe to set to work and organise properly for the next Tour. The winning of such a competition is one of the finest advertisements in the World.

We English so seldom win a competition that when we do, or when we break a World's Record, the whole world opens its mouth and gazes with astonishment. Consequently, a good win is worth far more to us as an advertisement than it is to any other country. Therefore, let us really make up our minds to win all competitions which may be open for the next couple of years. But to do so we must first read the rules of the competitions,—and act accordingly. Then we shall all make our fortunes out of aircraft.—C. G. G.

AT THE CART'S TAIL.—One of the nearly-winning Klemms being towed in after the consumption test.

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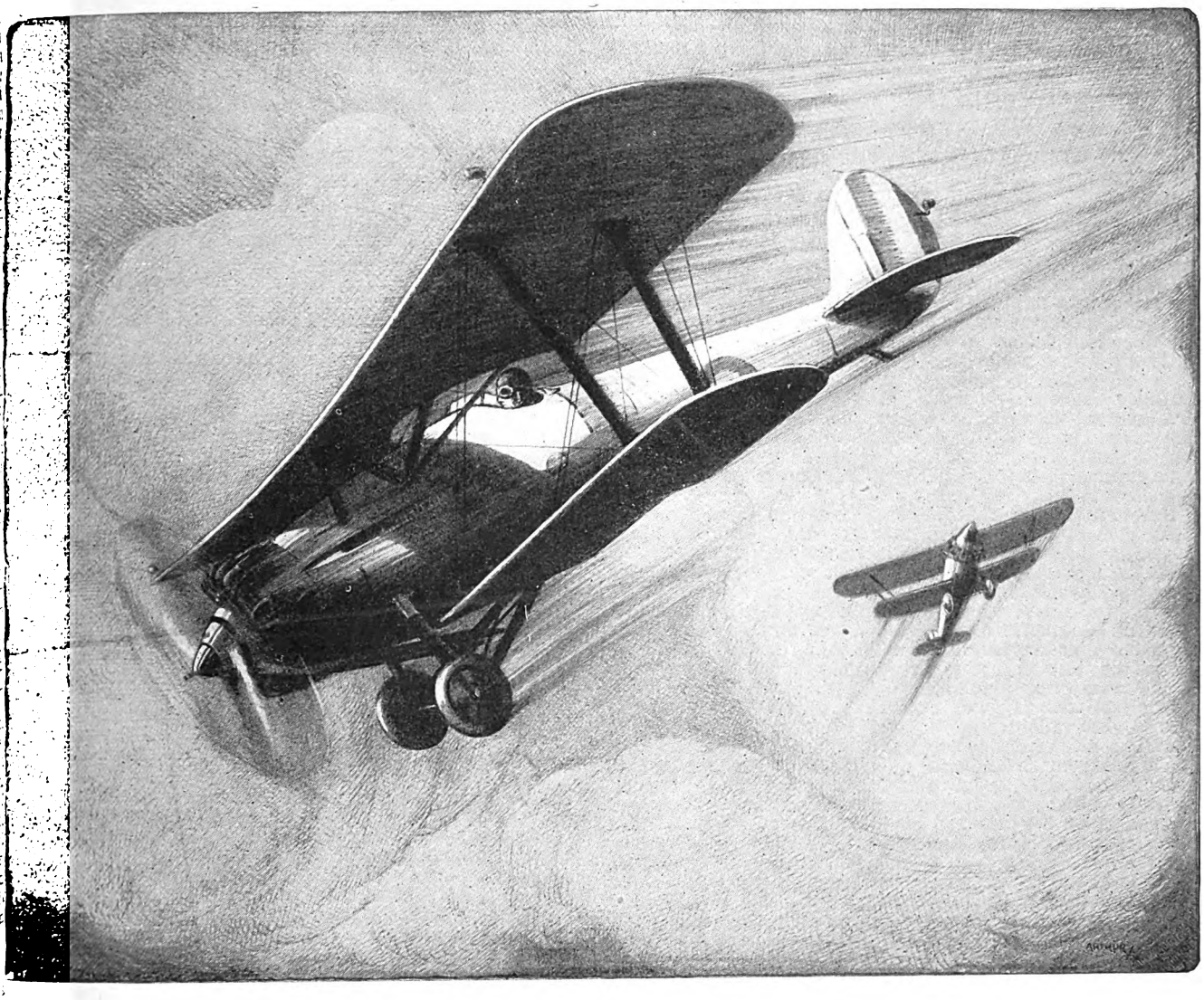

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THE RUNDFLUG DAY-BY-DAY.

The Consumption Tests.

On Sunday, Aug. 3, the camp was kept on tenterhooks all day about the marks for "quality," especially the marks for comfort. Except for the wing-folding and engine management nothing was given out, and the relative positions of the competitors was such as to make it very interesting indeed to know how comfortable they had been—theoretically.

Landing practice had been the order of the evening before, and Herr Kruger had rather strained the "practice"-B.F.W. (Argus) in a very determined effort to drop it dead over the tape. He achieved an impossibly short run, but it will hardly be repeated,—on that machine at any rate.

One got the impression, from watching the various machines brought in over the obstacle, that the German undercarriages give slightly more travel than the English, and are therefore better on a dead drop; furthermore that a little head-wind would very decidedly offset the usefulness of wheel-brakes by reducing the time during which the wheels were on the ground.

A good breeze would have been a boon to the Britishers in the trials, but they had little luck on Sunday when a gale would have given them a tremendous advantage in the consumption tests. A very light side-wind scarcely affected the times at all.

Nevertheless the English contingent had high hopes of their economical engines. They did nothing most of the morning while the Argus engineers were working busily on carburettors in the B.F.W., Klemm and Arado machines. About noon the petrol was given out, and here, as elsewhere, the organisation was excellent. Each competitor drew his allotment in heavy sealed cans which were marked with his number, resealed empty, and returned to stores. After the test the remaining fuel was drawn from the machine into the same cans for weighing.

The test was over two laps of a course of about 150 km. (roughly 90 miles), and the scoring, which was somewhat complicated, worked out to the following general effect:—Each heavy machine, such as the Moths, Spartan, Avian and Mono Special, could earn 10 marks for using not more than 14 gallons over the course, and for every gallon less they got about five points up to a maximum of 20 more. The light machines, which were the only serious rivals of the British, were allowed 11 gallons for a score of 10 marks, but gained about six points for every gallon below that, up to a similar maximum to that of the heavy machines.

The heavy machines could use 10 gallons and still score full marks, according to the above interpretation of the rules, whereas the lighter ones could use nearly eight gallons and still score full marks.

Messrs. Broad, Thorn and Carberry were first away at 16.00 hours. They rather astonished the *Luftpolizei* by turning on the ground and taking off across wind directly onto the course. Miss Spooner, with Mr. Amos, who had changed machines since Mr. and Mrs. Butler left for home on Saturday morning, followed soon after without any warming up, and for the next hour there was continuous departure. The Argus entries showed the effect of starving by giving some difficulty at the start and refusing to rev. up until warmed a little.

Mr. Andrews did an unorthodox, curvilinear and monowheeled take-off which caused some of the spectators to think he was out of control.

In about an hour Mr. Broad reappeared and cornered at the flag on the *Luftschiffhalle* with economy and neatness. Messrs. Thorn and Carberry followed close, and then came one of the Blind Mice (Hermes) which have a good turn of speed. Obviously these entrants were not seeking economy by the loitering method, as they were making good a ground speed of nearly 95 m.p.h.

The German machines positively whispered round at bare flying speed, and Miss Spooner was also treading fairly gently.

A Matter of Policy.

The relative advantages of the two policies were warmly discussed, some maintaining that the extra economy of very slow running would be offset by the much longer flying time, but the other school of thought were chary about assuming too soon that German competitors didn't know what they were doing.

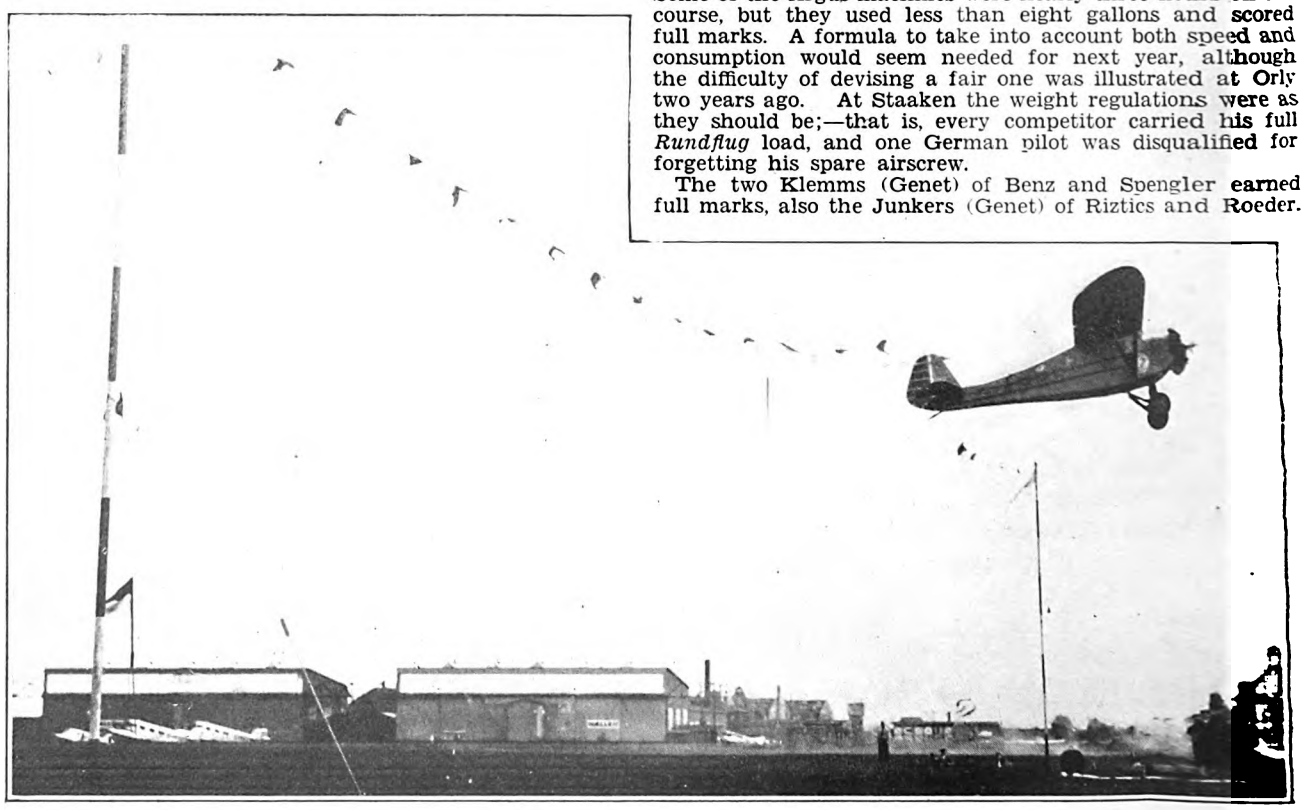
When Mr. Broad finished, in just under the two hours, he drew off enough remaining petrol to give him, apparently, full marks, according to current calculations. At midnight, however, a rumour spread that Mr. Broad had dropped three marks from the maximum for consumption, whereas Miss Spooner, Mr. Thorn, Mr. Carberry and the most dangerous of the German competitors, Herren Morzik and Poss had got full marks—to wit, 30. Herr Notz was only one mark down.

There were now five within five marks of each other: Broad 319, Morzik 318, Poss 317, Notz 314, Miss Spooner 314. A practically hopeless position for the British entries with the luxury allotment still unpublished.

The two Hermes engines left in the contest, out of the three which started, both got full marks for economy. Thorn did the fastest time round the consumption course—which benefited him nothing—and the Blind Mouse (Hermes) was very little slower. Broad and Carberry were also very fast.

Speed was more of a liability than an asset, however. Some of the Argus machines were nearly three hours on the course, but they used less than eight gallons and scored full marks. A formula to take into account both speed and consumption would seem needed for next year, although the difficulty of devising a fair one was illustrated at Orly two years ago. At Staaken the weight regulations were as they should be;—that is, every competitor carried his full *Rundflug* load, and one German pilot was disqualified for forgetting his spare airscrew.

The two Klemms (Genet) of Benz and Spengler earned full marks, also the Junkers (Genet) of Riztics and Roeder.



THE GATE-CRASHER.—Mr. John Carberry trying to lift his Mono Special (Warner Scarab) over the flags on a short allowance. A yard or two of them had to be unwound from his airscrew.

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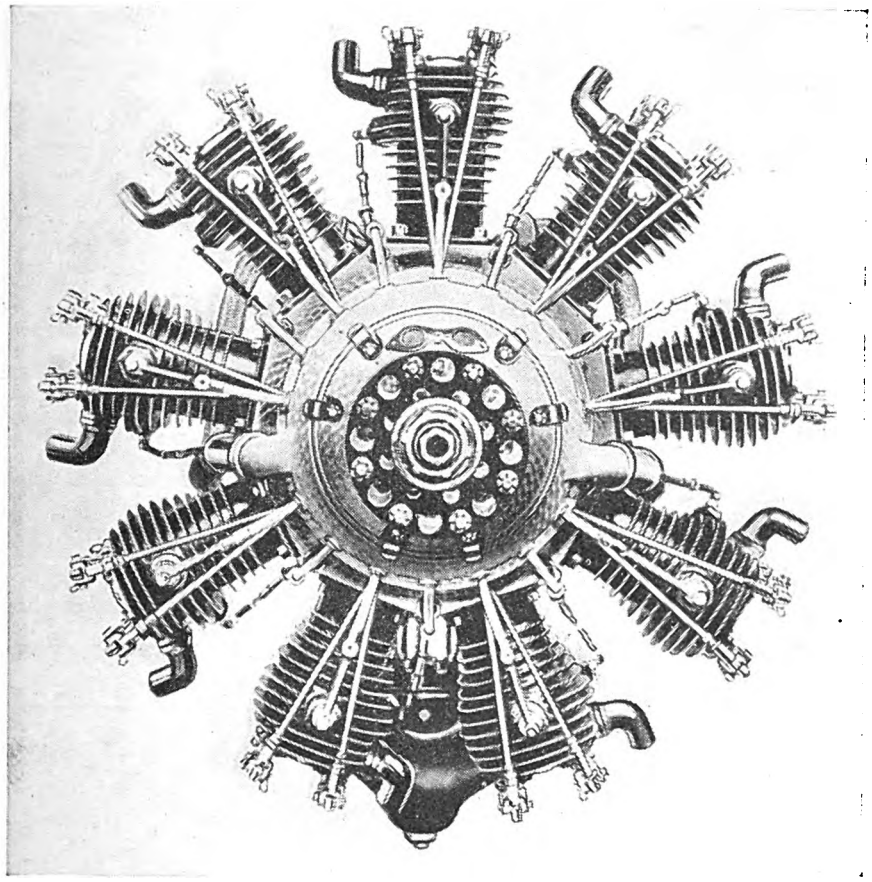

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The Argus engines earned anything from full down to 22 marks. The Gipsy I engines in Moths and P.Z.L.5's were less economical.

An Idle Monday.

On Monday nothing was done. Landing tests were supposed to begin, but the Committee apparently decided to clean up the scoring to date before attempting further tests. This was no doubt a wise plan, but it bothered the competitors a good deal. The absence of a notice board for competitors was the one flaw in an otherwise splendid organisation.

Incidentally there were times when an interpreter would have been highly appreciated in the Press Office, as information at all out of the ordinary was very difficult to get. The distribution of marks was excellent. But one could not by any means find out what had happened to most of the 24 machines which did not get round the course. And their mishaps might well have been more educative than the featureless flights of those who were successful.

However, six or seven different languages is rather a strain on one office, and if one will visit abroad in complete ignorance of the local lingo one can hardly blame one's hosts.

The very-much-occupied Herr von Hoeppner was wholly charming, and so was Herr Aichele, with whom we had several most enjoyable and enlightening talks. He, incidentally, was one of the non-finishers. Just 200 km. short of Berlin his airscrew burst in the air. Fortunately he was able to switch off before his engine jumped out.

Herr Neininger made a forced descent in the Gulf of Lions with his Darmstadter (Genet Major). Details were not forthcoming, but Herr Aichele said that the engine had been used a long time and had set up several records just before the race, for which it had no special overhaul. There was a Mistral blowing at the time,which may account for his being so far out.

On the Habits of Mistrals.

This Mistral is an interesting phenomenon, especially for *Rundflug* aviators. It blows for three days, and whistles along the Pyrenees from slightly North of West at tremendous speeds. Miss Spooner said that the leading machines got to Nimes before it started, but when the main body left Barcelona it was in full blast. Fortunately they were warned and given good advice, upon which they climbed to 6,000 ft. This height appears to be out of the jurisdiction of Mistrals, and should be maintained over both Pyrenean spurs until just beyond Perpignan, keeping well over the coast. At this point the Mistral deflects towards the northward slightly and provides an admirable tail wind along the coast and nearly to Nimes, more than compensating for the detour off the open sea.

Mr. Thorn made the journey just as the local mystery in breezes was getting up for its three-day session. He did not climb the regulation distance and was drifted well out, he says, in fear and trembling. He and Mr. Ford were unaware that the cushions of their parachutes were perfectly good life-belts,—which cost them both marks and peace of mind,—for they did not claim the marks for life-belts.

Mr. Andrews, who had spent one night in the open with Flt. Lt. Gibbons, his navigator, when their fuel ran out before getting to Madrid, also had an exciting journey. It was the hottest day of the whole tour, and the Spartan was carrying a very heavy load so that the climb over the tail end of the Pyrenees was rather sticky. He said he was thoroughly sick of Spain, and even the Gulf of Lions looked attractive by comparison. Their life-jackets were quilted affairs which made, he said, quite good mattresses as well as being warm to wear. He remarked that they got somewhat flattened towards the end of the journey and he thought at one time of pausing in Russia for a few kopecks' worth of kapok.

Weather Reports.

Polish weather reports are not in good odour with the English contingent. The three leaders flew over the tree-tops in complete absence of visibility all the way from Posen to Warsaw when the report was for a 600 ft. ceiling. A similar report next day caused them to wait a while, with wise nods, especially when the leading German machines arrived and pushed on. Eventually they decided to risk it and found a 3,000 ft. ceiling a few miles out.

This incident made a very hard race from Königsberg to Berlin in order to get the three British machines in first. Mr. Thorn finally beat Herr Morzik on the post at Tempelhof. This effort was not for points, but for sport, wherein lies the failure of the British machines to win the competition. The pilots were not at fault, but the machines were not built to get points, as the German machines were.

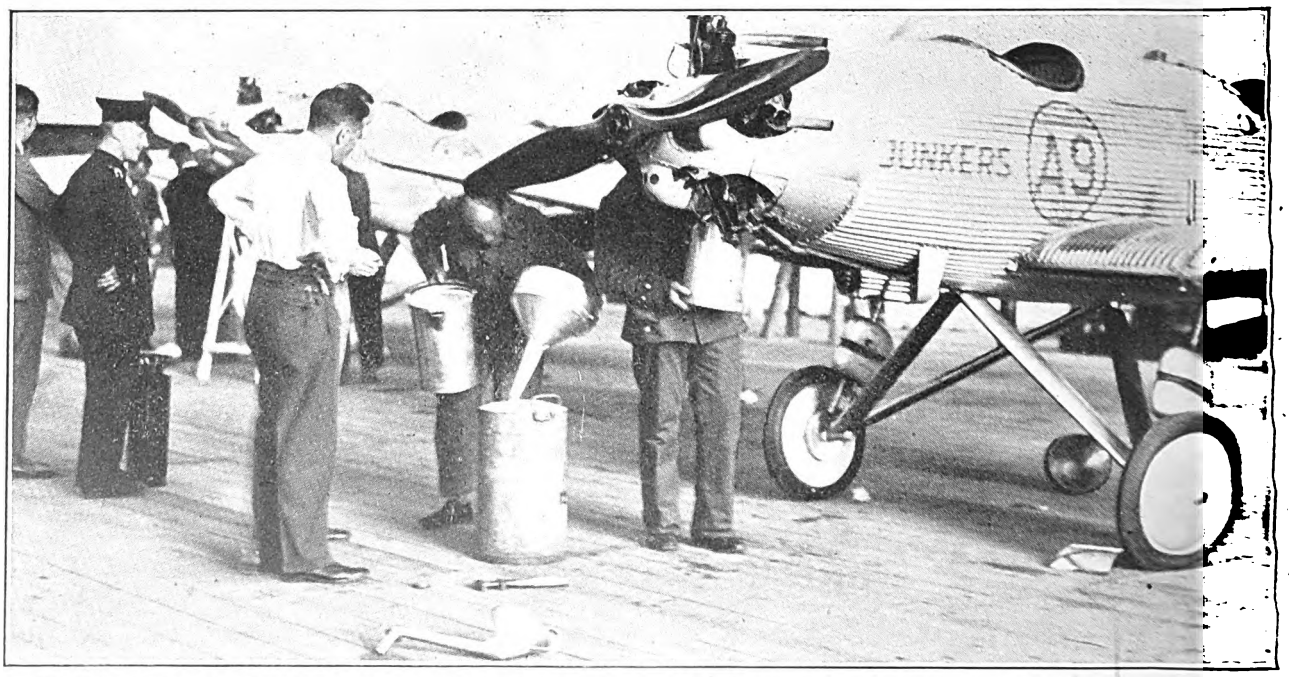
Comfort on Tuesday.

This appeared in the results of the "comfort" examination which appeared on Tuesday. The word, used in default of something more comprehensive, includes such amenities as wheel-brakes, split-axles, detachable wings (in addition to folding), cabins, telephones, side-by-side seating, instruments in both cockpits, etc.

The total marks, including those for parachutes, life-belts, etc. were 140, but no one machine could get them all as some were mutually exclusive. Still more appeared to be, but were not, as for instance the folding and detaching wings. The B.F.W.'s got marks for both, which they well deserved, as their folding is very neat and quick indeed, and complete detachment is a matter of a further few seconds only.

Mr. Broad got 56 marks, as did Miss Spooner. Poss got 62, Notz 61, and Morzik 54, which was less of a difference than most had expected. Nevertheless it put Broad down four points under Herr Poss.

Mr. Carberry was the hero of this event, as his Mono Special won 74 points. This put him up two points above Broad and two below Poss. Mr. Broad's three lost points in the consumption test began to appear at their true value.



WITH LOTS TO SPARE.—Drawing off surplus fuel after the consumption test. The machine is the Junkers Junior (Armstrong Siddeley Genet) of Herr Riztics, which got full marks easily for this test. The competitor's cans were marked and used for both weighings, before and after.

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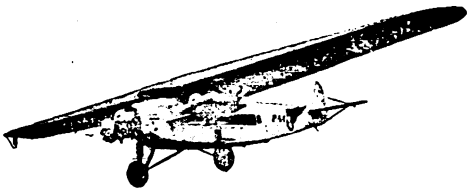

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The German machines have a slower landing speed than the Moth and quite a good take-off, and these were the only remaining tests. The wind failed us for the consumption test, but it still had another chance in the landings, provided the rather unintelligible formula wasn't also against us. But Mr. Carberry, within two points of the high man, had rather a high landing speed and a fairly long take-off. He instantly became avaricious for more points and scoured the rules.

A Trial of Strength.

"Detachable wings!" The Monocoupe is rather solidly put together, but Mr. Carberry and his engineer set about to tackle its dismemberment at speed. They got the wing off comfortably, but the rules said if wings were non-folding they must detach and be so fastened to the fuselage that the whole could be wheeled through a door. Cushions were placed on high places and the two stalwarts heaved on the heavy wing.

Debarred from giving help by an alert judge, the rest of the "assistance" stood round and offered advice. The wing was eventually balanced on the two heads for a moment's respite, but not all the straining in the world could get the necessary full-arm press up to get it onto the high fuselage. Mr. Carberry eventually gave up, after a Homeric and agonised effort to prove that he enjoyed still more "comfort" than had been credited to him.

It was rather typical, though, of the whole British entry: thoroughly sporting but unprepared. No German would get caught at the last moment trying to undo that which he ought not to have undone. Or if he were, he would certainly have done serious weight-lifting for at least six months to give him that last extra bit of muscle.

Actually there is no real reason why the Monocoupe should not fold quite well, as it uses V-struts anyway. However, it was within very little of the maximum weight, and Mr. Broad pointed out that folding wings, besides involving a complete redesign, add a good deal to the weight.

From personal experience one can say that it is a comfortable machine and would be more so with a couple more inches of room laterally. The visibility is less than that of a Puss Moth, but still quite good so long as the celluloid windows are clean. It has the transparent roof which adds so unexpectedly to comfort in a turn as it gives a view of the area to be traversed, and the Warner engine runs beautifully.

The brakes are the best in the race, apparently. From rest Mr. Carberry can turn his machine as it stands by jamming one brake, easing the stick forward, giving full rudder and a burst of throttle. The Mono then spins like a top, but without risk of a nose-over as the undercarriage is a long way forward. It lands at 45 m.p.h. The German and visiting public were very impressed with it.

In a gallant attempt to do a short take-off on Tuesday Mr. Carberry carried away most of the string of flags and wound them in his airscrew.

The Landing Tests.

On Tuesday evening the landings actually started. Mr. Thorn made several attempts and showed an excellent get-off, but his low and unbraked landing gear made his roll a long one. The two French Caudrons did not shine at either, but M. Finat made one very short landing that must nearly have demolished his undercarriage.

These tests seem dangerous and of little significance. The competitor must choose his distance for take-off and get over the string of flags at 8 m. (25 ft.). It is a direct temptation to cut it short to gain marks and stall at the obstacle, as several of the extraordinarily skilful pilots seemed about to do in practice. Several of them nosed down just over the obstacle and were almost on the ground before they had real flying speed again.

The point in landing over an obstacle is to find the space into which the machine might reasonably make a forced landing. In this test all the competitors have found out that the only way to judge the exact height at minimum flying speed is to come down to 25 ft. a couple of hundred yards early and clear the tape when hanging on a minimum of engine. On clearing the tape they cut the engine and pancake with a flop.

Nobody who comes in from a height as for a forced landing could hope to compete with those tactics, so naturally nobody does it. Therefore the usefulness of the test is eliminated. There is the distinct difficulty of judging the height and distance of a string of flags, but this should be overcome and the competitor obliged to land without engine from a height.

On Monday Mr. Buckingham, of the De Havilland Aircraft Co. Ltd., brought over a Puss Moth on his way to Copenhagen. It attracted enormous attention again, and it really gives a thrill to those who like to admire English aircraft when possible. Its unmistakable appearance of ease and speed in the air, as well as the extraordinary comfort of its occupants, are very impressive.

On the last day of the take-off and landing tests the Britons sustained a further piece of evil luck when Mr. Broad hit one of the uprights on the take-off test. As remarked before, this test is definitely a dangerous one, as the winner is he, or she, who can pull up closest into a stall in clambering over the flags.

At the time of Mr. Broad's attempt the wind was swinging wildly, and as the actual pull-off had to be postponed to the last minute in the interests of flying speed the drift was impossible to judge in advance. When G-AAHR got off Mr. Broad found that he was drifting fast to the left, and as he was as nearly stalled as possible there was not

ARCHIDUCAL CONDESCENSION.—The Archduke Anthony of Hapsburg-Tuscany passes under the yoke, which a Moth-owner may do without loss of dignity. He did not even close the slots, which Lady Bailey and he alone saw fit to use in the "Challenge de Tourisme."

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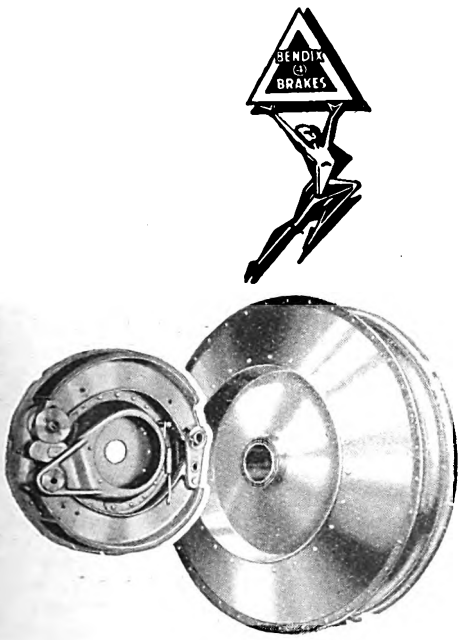
SAFE LANDINGS ON SMALL AREAS



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enough control to prevent the wing-tip hitting the upright. The judges conceded his right to try again provided he made no major repairs, so he inspected his wing, patched the fabric and made another attempt. For this, the final, wisdom demanded plenty of room, and Mr. Broad took 130 yards, thereby losing his chance of a high place.

Miss Spooner put up what Mr. Broad described as a "perfectly amazing show," and he ought to know. She cleared the 25 ft. obstacle with a run of 100 yards, and, for the landing, dropped G-AALK over the tape as dead as could be done without crashing. Her fine piloting saved fourth place for the British representation.

The Proportion of Finishers.

Out of 60 starters in the Tour of Europe 33 finished still technically in the running. About 37 actually got back to Staaken, but for various reasons four of these were *hors concours* by then. Because of the severity of the test, the failure of some 48 per cent. to finish within the prescribed time and under the conditions laid down is not so bad as it appears. The distance was considerable, the terrain by no means comforting over several of the stages, and the weather was, on the whole, bad. Moreover, to gain anything like full marks the engines had to be run at nearly full throttle, which is pretty hard even on modern aero engines.

The German contingent came to the starting line 30 strong and 20 finished, so that the creditable percentage of 60 per cent. came through the elimination trial. Of the others who fell by the wayside information is only obtainable as follows:—

Herr von Oertzen (Albatros-Argus) fell out at Heston after the tragic death of his passenger, Herr von Redern, killed by the airscrew.

Herr Offermann (B.F.W.-Siemens) and his passenger, Herr Jerzembski, were killed at Bron (Lyon) when the machine fouled a wireless aerial.

Herr Stutz (Arado-Argus) made a forced landing near Riscle and nosed over, necessitating repairs which disqualified him.

Herr Steindorff broke an airscrew near Vienna.

Herr von Dungern (Arado-Argus) brought his machine all the way round but was disqualified for absence from controls for a night and being forced to take off without his passenger.

Neininger (Darmstadter-Genet Major) came down in the Gulf of Lions and was rescued by the cargo boat, *Guercif*.

Herr Aichele's (B.F.W.-Argus) airscrew burst in the air 200 km. from the finishing line.

Dr. King (B.F.W.-Argus), also near the end, was forced down and more damage was done than could be repaired within the rules.

The Poles started with 12 machines and finished with five.

Karpinski (R.W.D.-Hermes) had an attack of appendicitis near St. Inglevert on the outward journey and had to give up.

Orlinski (P.Z.L.5-Gipsy) gave up in Spain.

Lewoniewski (P.W.S.51-Genet) broke an oil-line near Vienna.

Ruthkowski (P.W.S.52-Gipsy) failed to get beyond St. Inglevert.

Muslewski (R.W.D.-Salmson) remained at Posen.

Babinski (P.W.S.50-Cirrus III) finished the course after being delayed by illness at Warsaw.

All the others fell out somewhere in Spain for various difficulties.

Of the three Spanish entries only the Archduke Anthony of Hapsburg-Tuscany (who for some unexplained reason appeared in the programme as Hapsburg-Bourbon,—a non-existent house) finished, in his Moth (Gipsy I).

The Duque d'Estremera, piloted by Senor Ansaldo (Moth-Gipsy I) fell out at Pau.

Señor Navarro, had a mishap in landing on the first day.

Both Swiss entries arrived at the end of the tour, but only Pierroz (Breda 15-Walter Venus) qualified. M. Kolp (Klemm-Argus) was delayed by sickness at Zurich.

The French Aero Club had a long list of entries but only six started, among whom was M. Maus, the Belgian (St. Hubert-Walter).

Only two finished. Permangle (Peyret-Mauboussin-Salmson) ran out of fuel before reaching St. Inglevert and the machine damaged itself in the landing. M. Maus gave up in Spain; MM. Cornez (Caudron 193-Renault) and Dupont (Caudron 232-Renault) fell out at Madrid.

The seven British all got back to Staaken, but Mr. Butler's disqualification spoilt the 100 per cent. score for reliability. Even without him the ratio is far and away higher than any other competing club can boast; wherein are the germs of satisfaction.

Another German Triumph.

Germany, represented by Herr Morzik (for the second time), again wins the *Challenge de Tourisme International*. The winner's score was 427 out of 500. It was a thoroughly well-deserved win because Herr Morzik not only flew a machine which was one of a team of ten built for the race, nine of which started and seven of which finished, but he flew consistently well in all departments. The *Bayerische Flugzeug Werke* share the credit due to Herr Morzik and his B.F.W. M.23c, and so do the makers of the now famous hanging Argus motor. Seventeen of these engines started the race in B.F.W.'s, Klemms, Arados and Albatroses. Fourteen finished, which is miraculous for a new and hitherto untried engine.

Herr Morzik has undoubtedly proved himself to be in the first rank of all-round pilots.

Closely following him are Herr Poss and Herr Notz, both with Klemm L.25e's, and both with hanging Argus engines, which make the Argus victory still more sweeping and gives the well-tried Klemm no cause for disappointment in such a contest as this has been.

The particularly German attention to the conditions of the contest, Teutonic thoroughness in advance preparation, and thoroughly fine pilotage have cornered the competition in sweeping fashion with the type of machine in which German designers excel: the ultra-light sport-plane. The B.F.W. was designed with the book of rules on the drawing board,—with appropriate results.

Herr Morzik gets the Cup and 100,000 French francs, with such other additional sums as the prize regulations and the Committee shall decide.

The Heavy Category.

No less worthy of enthusiasm than is the German victory, to Germans, is the showing of British machines, to Britishers. It is ridiculous to pretend that we can enthuse as heartily over a foreign victory as we should have done if an English machine had won. The personal triumph of Miss Winifred Spooner, in winning the heavy category and gaining fourth place against an array of the best pilots in the World, is rather beyond words to do it justice. The feat is greater than ever because her machine, although a thoroughly reliable and good standard British product, was not by any means designed for the race any more than the rest of our entry was. On its native merits, and Miss Spooner's superb flying, the Moth (Gipsy II) G-AALK, took 416 points, which is only eleven less than the winner of the Trophy.

The Glorious Uncertainty.

The uncertainty of such a contest persists to the last moment, and the fact was never shown better than during the last few days of the technical tests. After Mr. Butler's fine performance, and ultimate disqualification for a broken airscrew, Mr. Broad was the only competitor with full marks for speed and reliability. He was regarded as a likely winner, in spite of his lack of cabin comfort, wheel brakes, etc., because the fuel economy of the Gipsy II is noteworthy.

The Germans were prepared to lose ten marks to him in the consumption test because the one penalty which the light machines had to pay for being light was a lower fuel allowance for full marks. On the Tour they reaped a big advantage in having a much lower average of speed to maintain—which none of them did, but lost few marks for it. The outcome of the consumption trials really dashed the British hopes.

And so it happened that, although three British machines led the field round the course, none of them got better than eighth place; whereas a woman pilot who arrived next day almost unnoticed in the throng, and whose performance, as remarked in The Aeroplane last week, was not then realised in its full excellence, gradually rose to win the heavy category and lead the British contingent to within very few points of the top.

The Aeroplanes in the Contest.

The competing machines have been fairly adequately described in The Aeroplane of the last two weeks, and the results seem to indicate that judged solely by the rules certain German products are easily best with the British a very close second.

Competitions must have rules, and some designers must have the satisfaction of proving by those rules that their products are supreme. Conversely, other makers lay the flattering unction to their souls that their machines, undoubtedly the best in the world, are the better because they were not built to any single book of rules but for general usefulness. The fact that they did not win a particular competition merely indicates, to them, serious imperfections in the competition rules. All of which is undiluted human nature.

An amusing feature of the events at Staaken was the entirely naïve way in which pilots of particular aeroplanes smiled tolerantly over certain rather unfair rules while agreeing with the general scheme. But the rules thus de-

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precated were different for each type and always appeared to penalise it slightly.

The same will naturally apply to the designers. The B.F.W. and Klemm designers are perfectly justified in supposing that they have Europe's best aeroplanes in the lightest category—and probably the best in the world, as Mr. Carberry got the most suitable he could from America—but their British opposite numbers are hardly likely to stop making Moths, Avians and Spartans in favour of imitation B.F.W.'s.

A Matter of Marks.

The tour round Europe, which was a stern test in every sense, carried a possible 270 marks out of the total 500. Some have suggested that the proportion left over for technical tests was too great. But after all, the duty of a modern aircraft is to fly reliably, and its ability to do so is almost taken for granted. The British entrants did excellently in this, and were really favoured by the bad weather, as some of the German pilots would undoubtedly have got full marks if the conditions had been less filthy.

The severe penalties for unavoidable lapses in absolute reliability, such as put Lady Bailey and Mr. Andrews out of the running, favoured the large team entries of one type, but in justice to the Klemm and B.F.W. be it said that their percentage of finishers was very high indeed.

Miss Spooner may fairly be said to have won the contest in the air and only lost it on the ground, but the time has come to recognise that the ground qualities of aircraft are important. Brakes would have brought her within two points of the winner, just as Mr. Carberry would have won hands down if his wings were foldable. The Palmer brakes on Mr. Andrews's Spartan seemed quite effective and good.

To go still further into what might have been, what could be, or what ought to be:—a small edition of the Puss-Moth (with brakes), and perhaps with slots to help get-off and landing, would have had no rival in this competition, and if the rules should be changed to an engine-capacity basis instead of weight it, or a successor, should sweep the board.

The rules for 1930 contemplated an aeroplane that would fly fast and reliably without question. If it did not the penalties were enough to put it out of the running immediately, which happened to two British machines in spite of the fact that they arrived well to the fore after nearly 5,000 miles. The competition concentrated on ground qualities only after the machine had shown that it was reliable, and that, after all, is quite logical.

The British designer is rightly proud of the air qualities of his machines, but the foreigner is following closely on in that, and he is forging well ahead with the frills, which will mean as much in aircraft as they do in the motor trade.

The Final Marks.

1. Morzik	427	18. Siebel	335
2. Poss	423	19. Wieckowski	329
3. Notz	419	20. Dr. Pasewaldt	318
4. Miss Spooner	416	21. Arrachart	311
5. Polte	409	22. von Waldau	305
6. John Carberry	405	23. Benz	304
7. von Massenbach	399	24. Gothe	288
8. Broad	395	25. von Freyburg	272
9 Krüger	394	26. The Archduke Anthony of Hapsburg-Tuscany	245
10. Dinort	385	27. The Hon. Lady Bailey	234
11. Osterkamp	384	28. Bajan	225
12. von Koppen	383	29. Roeder	217
13. Lusser	363	30. Gedgowd	169
14. Riztics	342	31. Andrews	163
15. Thorn	338		
16. Finat	337		
17. Plonzynski	336		

AIR WORK UNLIMITED.

When Mr. Nigel Norman and Mr. Alan Muntz, the founders of Air Work Ltd., who are officially the proprietors of that most popular of air resorts, the Heston Air-Park, chose the somewhat quaint name for their firm they evidently knew what they were about. There can hardly be any establishment in England where so much work is done on such a variety of aircraft which are the property of private owners and assorted operating firms as is done at Heston. And seldom can Air Work Ltd. have handled such variety as during the passing of the competitors in the Tour of Europe at Heston and at Bristol, where the firm has a branch repair-depot.

At Heston, a Polish R.W.D.4. (SP-ADK) had a wing removed, the port wing-tip was repaired, and a new piece was spliced into a top longeron; a German B.F.W. (D.1887) had the box-spar of the tail-plane rebuilt, and a B.F.W. (D.1891) had a strengthening panel made for the skid-bay of the fuselage.

At Bristol an R.W.D.2 (P.5) had a thrust-bearing replaced in the engine in two hours and the engine thoroughly examined, and the B.F.W. (D.1891) had an all-night job done on the tail-skid supports and the rear end of the fuselage. The work was finished at 06.00 hrs., and the machine started at 07.00 hrs.

Altogether Air Work Ltd. put in 106¾ man-hours on competing machines. And on three jobs the mechanics were working till after midnight. So the competitors evidently were not the only people to show good sportsmanship.

THE GREAT BRAKE QUESTION.

The following letter from Mr. O. E. Simmonds, Director of Spartan Aircraft Ltd., and inventor and designer of the patent interchangeable system which has made a world-wide name for Spartan aircraft, deals very interestingly with the all-important problem of brakes on British aeroplanes:—

Sir,—In view of the fact that I nearly expired under the mental strain of trying to fit brakes to the Spartan Arrow that has been going round Europe, I was particularly interested in your paragraph this week on "The Great Brake Question." As you note in another part of your current issue, our "Arrow" did end up with brakes, and I gather from Andrews that they are quite satisfactory, too.

In these circumstances you are scarcely fair to the Air Ministry in stating that their action prevented *all* the British machines from getting the brake marks. If we had taken the torque reaction through the axles we should probably have had to make them solid, as your paragraph suggests, but there are, of course, other ways of taking the reaction, and I think the method we adopted of taking cables from the outside of the brake-drum to some point on the fuselage is both light and efficient.

Incidentally, also, the Air Ministry have now reduced their original requirement of four times the weight of the aircraft applied backwards to a force equal only to the weight of the aircraft. This, of course, helps things.

The point, however, with regard to brakes to which I personally take great exception at the moment is that, if you have the subsidiary members for taking the torque reaction, they have to be up to the same strength as the main members of the chassis itself, so that if the torque reaction member fails the whole chassis will collapse with it. I do think this is quite futile, and I have no doubt you will agree with me on this point.

By the way, I often see mentions in The Aeroplane of the A.D.1 Airship. I do not know whether you are aware that we did most of the design work and constructed the car for this ship.

(Signed) O. E. Simmonds.

AN AFFAIR OF MIDGETS.

Referring to Mr. John Carberry's machine in the first article on the Rundflug one remarked that its independent wheel brakes made it as manœuvrable on the ground as an M.G. Minor. To adopt the usual journalistic formula, one should say, "Of course one meant the M.G. Midget." There does not happen to be any "of course" about it, but, in fact, one did mean the M.G. Midget, which is quite one of the most joyous little vehicles on the road.

THE JOURNEY OVER.

Recently one was privileged to travel to Berlin by the Royal Dutch Airlines (K.L.M.). The reputation of this firm is enough to attract pretty full cabins, it seems, and the enthusiasm of fellow passengers during the flight to Rotterdam implies that K.L.M. lose nothing on closer acquaintance. The 15-passenger Fokker (two Jupiters) in which we did the first leg to Rotterdam has an interior silence quite amazing when compared with its fearsome clangour heard from below.

The pilot gave a beautiful exhibition of air-line flying as it should be. These machines, with the full 15 passengers, will not fly far on one engine, so the climb began at Croydon and ended at the coast when we were 9,000 feet up in the midst of startlingly beautiful formations of cumulus clouds. The passengers gave vent to vocal enthusiasm, and one produced a miniature movie camera. The rest of us felt impelled to curtail the "release" owing to the draught from his open window—a very chilly one at that altitude. Once this was closed the cabin was quite cosy as the second pilot had come in and turned on the heater.

At the coast the engines were throttled well back and we arrived over Gravelines at 1,000 feet after a long easy slant. Those of us who understood a little of flying, and were therefore an unpleasant lot to satisfy, could hardly do less than explain the manœuvre to the less omniscient and share out the absolute confidence which it aroused.

The return trip was made against a strong headwind and eight-seater Fokkers (three Titans) were used all the way. They are not so restful as the twin-Jupiter variety but are very fast and handy. From Rotterdam to Croydon Mr. Smirnoff took all the short cuts at 1,800 revs. per minute and 160 km. per hour nearly all the way in order to beat the darkness. Nevertheless we landed with the aid of flares and a floodlight after an intensely interesting flight over a twilighted English landscape.

Mr. Smirnoff's adeptness is honestly come by, as he had

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were fitted to the Rolls-Royce "Condor" engines of the R.100, the fastest airship in the world

for her record flight across the Atlantic from Cardington to Montreal. They were also fitted in the R.34, the first airship to cross and recross the Atlantic in 1919, and the following notable achievements in the air have also been gained with the help of B.T.H. Magnetos.

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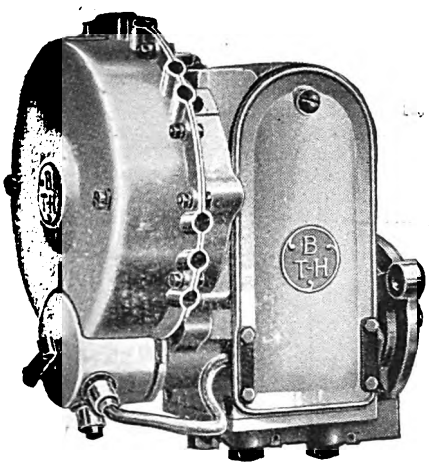

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distinguished career in the Russian Air Force before the revolution impelled him to walk abroad by way of Siberia. By a circuitous route he came to England and achieved the impossible by becoming the holder of His Britannic Majesty's commission in the R.A.F. while still a Russian. After the War he flew with the S.N.E.T.A. in Belgium until 1922, when he joined the K.L.M. Since then he has made two or three trips to Batavia and back, and recently became a Dutch citizen on completion of the necessary seven years' residence,—mostly spent in the air.—F. D. B.

AN INTERNATIONAL OCCASION.

Lieut. J. Alford Williams, well known in his native United States and the World at large for his exploits in speed and aerobatic flying, paid a fleeting visit to Europe recently bearing invitations from the City of Chicago to representative aerobatic pilots of Europe. The invitation was for their presence in Chicago on Aug. 22, at the opening of the 1930 National Air Races, there to engage in an international aerobatic demonstration.

England will be represented by Flt. Lt. R. L. R. Atcherley, who has been granted special leave by the Air Staff. He has taken with him in the *Leviathan* a Blackburn Lincock (220 h.p. Armstrong-Siddeley Lynx) which was equipped with carburation and tankage for inverted flying at very short notice. A better choice could hardly have been made for an aerobatic exhibition. The public demonstrations on this identical machine have impressed all pilots with its extreme handiness and manœuvrability.

Signor Pietro Colombo has gone to Chicago to fly for Italy, and his craft is the new Breda B 19 (220 h.p. Armstrong-Siddeley Lynx). This is a small biplane designed for advanced military training in aerobatics, and is, like the Lincock, equipped for inverted flying.

The German delegate is Capt. Fritz Lohse, who is an aerobatic specialist for the *Junkers Flugzeugwerke*. He has taken no machine with him and will probably use one of the Junkers machines already in the United States.

M. Marcel Doret will fly a Dewoitine single-seater under French colours. His machine is a parasol monoplane (Hispano Suiza).

THE FASTEST YET ACROSS THE STATES.

On Aug. 6 at 06.00 hrs. Mr. Frank Hawks left Curtiss Field, Long Island, New York in an aeroplane of unspecified make and reached San Francisco at 16.50 hrs. after crossing the United States in daylight. Allowing for the difference between Eastern and Western time his total time was 14 hrs. 53 mins. 43 secs. from which should be subtracted 1 hr. 15 mins., which was the total time spent on the ground for his five refuelling stops.

For the total distance of 2,800 miles it is estimated that he averaged slightly over 200 m.p.h. for 13 hrs. 38 mins. actual flying time.

The previous fastest time across the United States was put up last May by Mr. Roscoe Turner in a Lockheed monoplane who covered the distance in 18 hrs. 45 mins. 54 secs. And prior to this a number of other fast times have been made, including one by Col. Charles Lindbergh, all on Lockheed monoplanes. Therefore, on the assumption that the company's slogan "It takes a Lockheed to beat a Lockheed" is well-founded, one can only assume that Mr. Frank Hawks was using a Lockheed.

NEW YORK—MEXICO CITY NON-STOP.

On June 21 Col. Roberto Fierro, Chief of the Mexican Department of Commercial Aviation, accompanied by a mechanic flew from New York to Mexico City in a Lockheed Sirius low-wing monoplane (425 h.p. Pratt and Whitney Wasp engine), a distance of 2,200 miles in 16 hrs. 33 mins. non-stop.

The previous non-stop flight to Mexico City was made from Washington by Col. Charles Lindbergh in December, 1927 in the *Spirit of St. Louis* in a flying time of 27 hrs. 10 mins. for a distance shorter by approximately 250 miles.

Col. Fierro took delivery of his machine at the Lockheed Works at Burbank, California and flew it from there to New York by way of San Antonio (Texas) and Montgomery, (Alabama). His flight to Mexico City took him over the 10,000-feet Sierra de Pachuca mountains between Tampico and Mexico City.

One now learns that President Ortiz Rubio of Mexico has prohibited any further dangerous long-distance flights by military pilots on the sensible assumption that a live pilot is of considerably more value to his country than is a dead hero.

A NEW USE FOR AIRCRAFT IN THE U.S.A.

On Aug. 11 an aeroplane dropped nine dynamite bombs on the coal fields near Providence, Kentucky, where labour disturbances have been going on for several months. These mines were closed on April 1 owing to a dispute over wages and have only been opened up recently with non-union labour.

The registration number of the machine was discovered, but it is assumed that the number carried was a false one. The bombs were of a home-made kind and consisted of packets of dynamite wrapped in adhesive tape to which fuses were attached.

The thing to be chiefly regretted seems to be that the aeroplane did not itself suffer a bumpy forced landing before it dropped the bombs.

THE OPENING OF THE RATCLIFFE AERODROME.

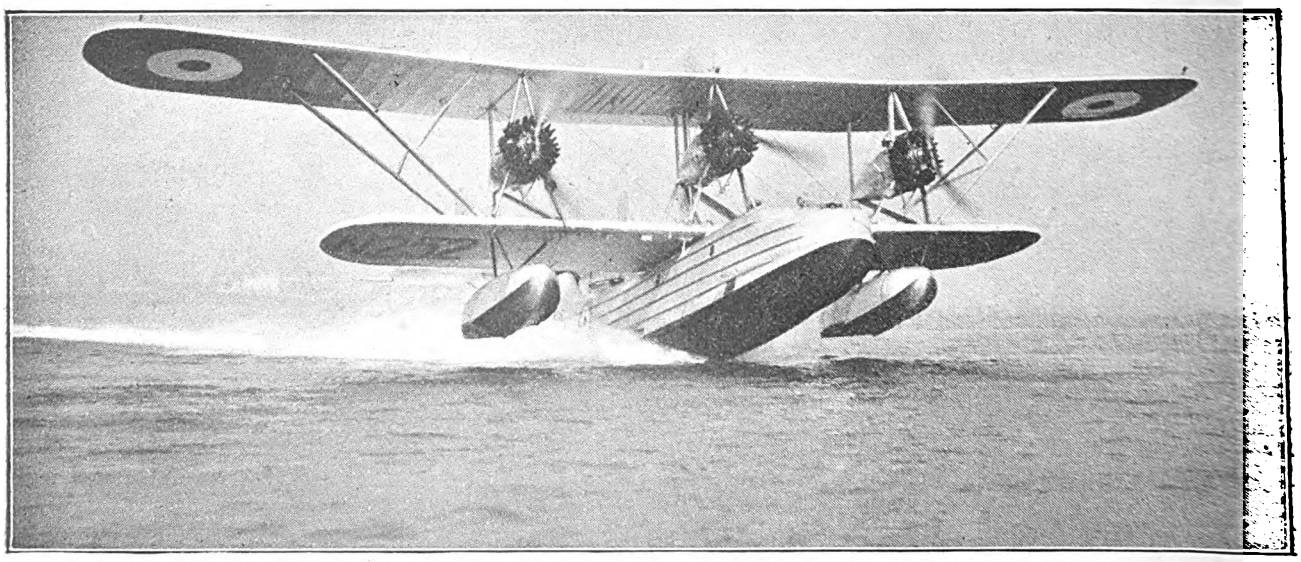
The party at the opening of Mr. Lindsay Everard's new aerodrome, which has been laid out for him by James Hunter Ltd., of Chester, at Ratcliffe on Saturday, Sept. 6, should prove to be a very jolly show. Already the Leicester Aero Club has promises of support from No. 43 (Fighter) Squadron, Tangmere, and about 50 private owners and club pilots. More are expected as 300 invitations have been sent out to private owners.

All visiting pilots will be the guests of Mr. Everard for the day. Lunch and tea are to be served in his new shed and after the show a dinner will be given in Leicester. Rooms have been booked at several hotels and visitors who want more than a single room should write to Mr. Purt, the Honorary Secretary at 3, Granby Street, Leicester.

FESTIVITIES AT CRAMLINGTON.

On Aug. 30, an Air Fete will be held at Cramlington Aerodrome and the Newcastle-upon-Tyne Aero Club will take the opportunity to be At Home to their friends.

The programme is now being arranged and one hears that there are to be, among other things, a cross-country race, and an arrival competition. Fuller details will be published in due course. And one hopes that the organisation will be properly organised.



FOR THE MASTERY OF THE SEA.—The new all-metal flying-boat (three Armstrong Siddeley Jaguars) built by the Supermarine Works branch of Vickers Ltd. as a possible replacement for the famous Southampton.

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DEVELOPMENTS IN THE S.B.A.C.

An interesting reorganisation has been taking place recently in the Society of British Aircraft Constructors, and the various departments affected by it are now shaking down into place nicely for the great campaign which will doubtless start in favour of British aircraft all over the World as soon as people have finished having holidays,—and more especially in connection with the great British Exhibition in Buenos Aires next month.

Mr. C. V. Allen, who has been Secretary of the S.B.A.C. from its formation, has found that his work is more than can be tackled by one man, so he has been put in charge of certain definite activities of the S.B.A.C. with the title of Director. Everybody will be glad to hear that Mr. Allen is retaining an influential position in the S.B.A.C.

Though very little about Mr. Allen has ever got into print, there is no one man to whom the British Aircraft Industry owes more than it does to him. His extraordinary industry, his capacity for work, and his unusual ability to understand and appreciate all kinds and conditions of men have done an immense amount towards holding the S.B.A.C. together and reconciling the interests of conflicting elements therein. Apart from that his abounding sense of humour and good humour have made many friends for him, and must many times have saved him from a nervous breakdown. And his legal knowledge is admirable.

The post known officially as the Secretaryship, which has hitherto been held by Mr. Allen, has now been taken over by Mr. H. R. Gillman, who has had a long and varied experience of aircraft. And as Mr. Gillman is the particular official with whom people new to the Trade are most likely to come in contact, some knowledge of his past will be useful.

He began at the Royal Aircraft Factory at Farnborough in 1912 and was there up to March, 1916. During that period he worked in the aircraft erection shops, the experimental engine shops, and the testing departments for metallurgical and other material. He actually worked on the early R.A.F. machines, the R.Es. and F.Es. and in the experimental engine shop with Mr. J. S. Irving, since famous as the designer of Sir Henry Segrave's record-breaking car. He also worked on the first single-cylinder experiments with air-cooled engines, and observed the International Engine Trials in 1913 and 1914.

In March, 1916, he was appointed Engineer Sub-Lieutenant, R.N.V.R., with the airships of the R.N.A.S., and remained with them until 1920 in charge of workshops, at which time he held the rank of Captain, R.A.F. His last job in airships was as Admiralty Engine Supervisor on R.80 at the Vickers Works at Barrow-in-Furness.

After he was demobilised he was appointed Secretary to Lloyd's Aviation Department, which was opened in 1920 but was closed in 1923 owing to lack of development in Civil Aviation at that time. But in that period Mr. Gillman came in touch with most of the people who are seriously concerned with aviation and acquired a great deal of knowledge about the workings of the Aircraft Industry. Also he spent something over a year at Croydon reporting on the operations of the air lines there. After the closing of Lloyd's Aviation Department he was connected with marine insurance in Lloyd's and left there to join the S.B.A.C.

Mr. Gillman has had flying experience in aeroplanes, airships and even in free balloons, so that, unlike many of those in official positions, he has an all-round experience of practically every phase of the subjects with which he will now have to deal.

Besides these changes an entirely new department has been started called the Information Department, which Mr. E. C. Bowyer has been appointed to organise. The functions of the Information Department will be to communicate to all and sundry all the information that is good for them to know about the British Aircraft Industry. Not only will this department supply information to those who want to know, but its duty will also be to thrust information tactfully in front of those who ought to know.

On the other side, the work of the department will include getting hold of all possible information about competitors in other nations and likewise drawing the attention of the various component units of the Aircraft Industry to what their competitors are doing.

One is particularly glad that the S.B.A.C. has put this burden upon a department of its own, for it is precisely the work which one has been trying to do in this paper for a number of years, and one has become thoroughly disliked by certain people in the Industry for doing so.

One gathers that another of the duties of the Information Department will be to discover when people of importance from the British Dominions Overseas or from other nations visit this country and to get in touch with them and see that they are given the opportunity of seeing everything that is to be seen throughout the Aircraft Industry. One of our chief troubles at the present moment is that when persons of note arrive they are apt to get in touch with one particular firm and to spend all their time with that firm so that they never get the all-round knowledge of the excellent work which has been done by the Aircraft Industry which they would get if they were properly shepherded round the Trade.

Mr. Bowyer served in the R.A.F. during the War, and after leaving the Service he pursued for some years the nefarious trade of journalism. Latterly he has been the aeronautical representative of *The Daily News*. And those who have read the aeronautical notes in that paper for some years past will have recognised that they have always been intelligent and accurate to a degree which is most unusual in the non-technical Press of any nation.

Mr. Bowyer is to be congratulated both on his appointment and on being rescued from Fleet Street, and his many friends in aviation will wish him every success in his new activities.—C. G. G.

A TRANSPORT PROBLEM.

Among interesting visitors to this office during the past week has been Mr. Cross of New Guinea Airways Ltd.—the firm which has been for some years running a regular air line from Lae on the coast up to the mines at the Wau (pronounced the Wow, as if it were something funny in America). He is over here looking for some tens of thousands of pounds' worth of big aeroplanes of rather a special type, and apparently it does not exist.

The Wau is about 4,000 above sea level and takes between 40 minutes and an hour to reach by air, over a range of mountains 9,000 feet high. Trains of carriers take eight days up loaded and four days down light. So air transport pays.

A new mining proposition in the Wau area, but lower down, is starting gold-mining with dredgers, instead of rock-mining. And the dredging machinery has to be got up-country.

Some of the single parts, for example crank-shafts, weigh between two and three tons. There is no difficulty in finding aeroplanes to lift the weights, but there is much difficulty in finding aeroplanes with room inside to stow such big parts and to lift them into place when they are got inside.

The proposition is interesting, and it is purely commercial. There is no doubt about the suitability of air transport for such work. It is far the best and cheapest way of handling such cargo,—for in such business time is money more than ever. And there are no aerodynamic difficulties in the way. The only obstacle seems to be the purely commercial difficulty of finding a ready-made aeroplane to suit the potential buyer, or alternatively inducing the buyer to wait while a machine is built for him, while at the same time persuading him that when it is built it will do what he wants.

Several firms in this country are able to prove that their performance-figures are invariably an improvement on their estimated figures. And the rest should be a matter of salesmanship and the arrangement of suitable tests and of terms of payment. The placing of such an order in Germany or America would be lamentable.

MR. BARNARD BROADCASTS.

Mr. Charles Barnard is to be congratulated on his excellent broadcast speech on Aug. 6 about his flight to Malta and back. Unfortunately he was sandwiched in between a sort of Youth of Britain address by Miss Amy Johnson and a weak performance by the Co-Optimists, with the result that he had to hustle his speech horribly. In spite of that he spoke very clearly and his voice was distinctly easy on the ears after some of the other speakers.

Those who did not happen to hear him will be interested to know that Mr. Barnard's course took him within sight of Mont Blanc and right over the South-Western Alps. That the Puss-Moth and her Gipsy engine should have been able to get to that height with so much of her overload of petrol left is powerful evidence of the efficiency of the machine.

Later on Mr. Barnard confessed that he was carrying a camera and flew round Vesuvius to get some snapshots. One would like to know whether Mr. Barnard realises even now the awful fate which would have befallen him if he had made a forced landing in Italy and had been discovered with an unmuzzled camera. Five years in the Lipari Islands would probably have been the least of the penalties inflicted on him for daring to have a camera in the air over that country.

One was glad to hear also his necessarily short but hearty tribute to his reception by the R.A.F. people in Malta. Probably some of them were listening in and so they know all about it already, but there is no harm in mentioning the fact.

No pilot in this country knows more about aviation than Mr. Barnard does, so one hopes that he will be given the opportunity of doing some more broadcasting.—C. G. G.

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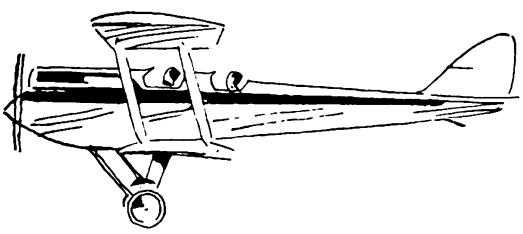

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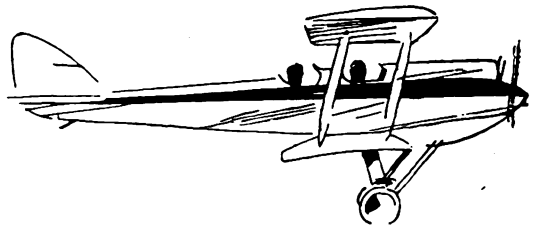

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THE ROYAL AIR FORCE.

The London Gazette.

Air Ministry August 5.

ROYAL AIR FORCE.

GENERAL DUTIES BRANCH.—Plt. Off. L. R. S. Freestone is confirmed in rank (June 17). The undermentioned Plt. Offs. are promoted to the rank of Flg. Off. (June 15):—J. G. W. Weston, D. W. Bayne, D. J. Eayrs, W. R. Beaman, H. G. Richards, D. P. Lascelles, R. W. Letchworth, F. D. Lockwood.

The undermentioned are restored to full pay from half pay:—Wing Cdr. P. C. Sherren, M.C. (Aug. 4); Sq. Ldr. F. Fowler, D.S.C., A.F.C. (Aug. 1).

Sq. Ldr. H. H. James, O.B.E., is placed on the half-pay list, scale A. (June 30 to Dec. 30 inclusive).

Flt. Lt. J. Lawson is placed on the retired list at his own request (Aug. 5).

The undermentioned Flg. Offs. are transferred to the Reserve, Class A:—R. A. Wills (July 18); A. P. Wayte (Aug. 5).

The S.S. comns. of the undermentioned Plt. Offs. on probation are terminated on cessation of duty:—C. C. M. Dunman (Aug. 2); G. H. Leftwich (Aug. 6); J. G. Nolan (Aug. 6). Flg. Off. J. N. Berkeley-Miller (Lt., Royal Tank Corps) relinquishes his temp. comn. on return to Army duty (July 26). Flg. Off. B. F. R. M. Freeman (Lt., King's Own Royal Regt.) relinquishes his temp. comn. on resigning his Army comn. (Aug. 1).

MEDICAL BRANCH.—Flt. Lt. A. F. Cook, L.R.C.P. and S., ceases to be seconded for duty with the Trans-Jordan Frontier Force (Aug. 1).

DENTAL BRANCH.—The undermentioned Flt. Lts. (Temp. Captains, General List, Army, Dental Surgeons) are granted non-perm. comns. as Flt. Lts. (July 1):—J. M. Jamie, L.D.S.; H. D. Humphreys, L.D.S.

RESERVE OF AIR FORCE OFFICERS.

GENERAL DUTIES BRANCH.—The undermentioned are granted comns. in Class A.A. (ii) as Plt. Offs. on probation:—L. F. Malone (July 18); M. D. R. Meiklejohn (July 21); R. M. H. Noble (July 24). R. P. S. Davidson is granted a comn. in Class A as a Plt. Off. on probation (July 19).

F. L. D. Salter is granted a comn. in the Special Reserve as a Plt. Off. on probation (June 4). Flg. Off. P. P. Grey is transferred from Class A to Class C (July 10). Flg. Off. W. C. Venmore is transferred from Class C to Class A (June 26). Flg. Off. J. Durward relinquishes his comn. on completion of service and is granted permission to retain the rank of Flt. Lt. (Dec. 7, 1929).

ACCOUNTANT BRANCH.—Flt. Lt. L. J. Marden relinquishes his comn. on completion of service (April 21).

AUXILIARY AIR FORCE.

GENERAL DUTIES BRANCH.—No. 602 (CITY OF GLASGOW) (BOMBER) SQUADRON.—Plt. Off. F. G. Murray resigns his comn. (May 7). No. 603 (CITY OF EDINBURGH) (BOMBER) SQUADRON.—The Rt. Hon. the Earl of Stair, D.S.O., D.L., J.P., to be Hon. Air Commodore (Aug. 5). No. 607 (COUNTY OF DURHAM) (BOMBER) SQUADRON.—W. L. Runciman to be Sq. Ldr. and to command the Squadron (June 13).

Appointments.

Week ending August 11.

GENERAL DUTIES BRANCH.—Group Captains W. L. Welsh, D.S.C., A.F.C., to H.Q., Coastal Area, whilst attending course in Flying-boats at Calshot, 7/8. H. L. Reilly, D.S.O., to H.Q., Fighting Area, Uxbridge, for Air Staff duties, 26/7.

Wing Commanders C. C. Miles, M.C., to No. 58 Sqdn., Worthy Down, to command, 5/8. W. B. Callaway, A.F.C., to Air Ministry (D.O.S.D.) for Air Staff duties, 6/8. P. C. Sherren, M.C., to No. 10 Sqdn., Upper Heyford, to command, 4/8. R. G. D. Small, to Station H.Q., North Weald, to command, 1/8.

Squadron Leaders E. D. Atkinson, D.F.C., A.F.C., to R.A.F. Depot, Uxbridge, 1/8. C. A. Stevens, M.C., to No. 3 Sqdn., Upavon, 8/7. F. Fowler, D.S.C., A.F.C., to H.Q., R.A.F., Halton, 1/8. H. H. James, O.B.E., to Half-pay List, 30/6.

Flight Lieutenants G. H. Randle and A. H. W. J. Cocks, both to Cambridge University Air Squadron, 30/7. R. K. Emerson, to R.A.F. Depot, Uxbridge, 7/7. J. C. E. A. Johnson, to R.A.F. Depot, Uxbridge, 29/7. N. L. Desoer, to No. 1 (Indian Wing) Station, 7/7. L. H. Stewart, to R.A.F. Base, Calshot, 1/8.

Flying Officers A. K. H. Binley, to No. 14 Sqdn., Palestine, 1/8. R. B. Councell, to R.A.F. Base, Calshot, 1/8. L. S. Cundell and J. S. Hindmarsh, to No. 2 F.T.S., Digby, on appointment to Temp. Comns., with effect from 15/7. L. H. Anness, A.F.C., to R.A.F. Practice Camp, Catfoss, 29/7.

Pilot Officers G. W. P. Grant, to No. 2 F.T.S., Digby, 30/7. W. O. J. Coke, to R.A.F. Depot, Uxbridge, 1/8. W. M. L. Macdonald, to No. 19 Sqdn., Duxford, 29/7. R. Smith, to No. 56 Sqdn., North Weald, 29/7. W. F. Pharazyn, to C.F.S., Wittering, on appointment to a S.S. Comn., 28/7.

MEDICAL BRANCH.—Wing Commander R. S. Overton, to H.Q., Coastal Area, for duty as P.M.O., 14/8.

Squadron Leader W. F. Wilson, M.C., to No. 22 Group H.Q., S. Farnborough, 12/8.

Flight Lieutenant L. Freeman, to Princess Mary's R.A.F. Hospital, Halton, 5/8.

STORES BRANCH.—Flying Officer H. W. Penney, to No. 70 Sqdn., 'Iraq, 7/7.

ACCOUNTANT BRANCH.—Pilot Officers C. A. Profitt, to Station H.Q., Hendon, 11/8. P. Griffiths, to Station H.Q., Upavon, 11/8. R. Peel, to R.A.F. Record Office, Ruislip, 11/8. J. G. Wigley, to R.A.F. M.T. Depot, Shrewsbury, 11/8. W. J. R. Cann, to Station H.Q., Mount Batten, 11/8. R. F. Fleming, to R.A.F. Base, Gosport, 11/8.

CHAPLAINS' BRANCH.—The Rev. G. H. Piercy, to No. 30 Sqdn., 'Iraq, 6/7.

Fatal Accidents.

The Air Ministry regrets to announce that as the result of an accident near Grantham, Lincolnshire, to a Siskin machine of No. 41 (Fighter) Squadron, Northolt, on Aug. 6, 1930, Plt. Off. Wilfred Sawyer, the pilot and sole occupant of the aircraft, was killed.

An inquest was held at Grantham, on Aug. 8. The following report is taken from *The Times*:—Flt. Lt. Leach said Sawyer, who was a fully-qualified pilot, asked his permission to go up and test an engine. Witness agreed, adding that he should be down again within twenty minutes. Sawyer did not have permission to go to Casthorpe, which was outside his flying area. Evidence was given that the machine was in good order and fit for flying.

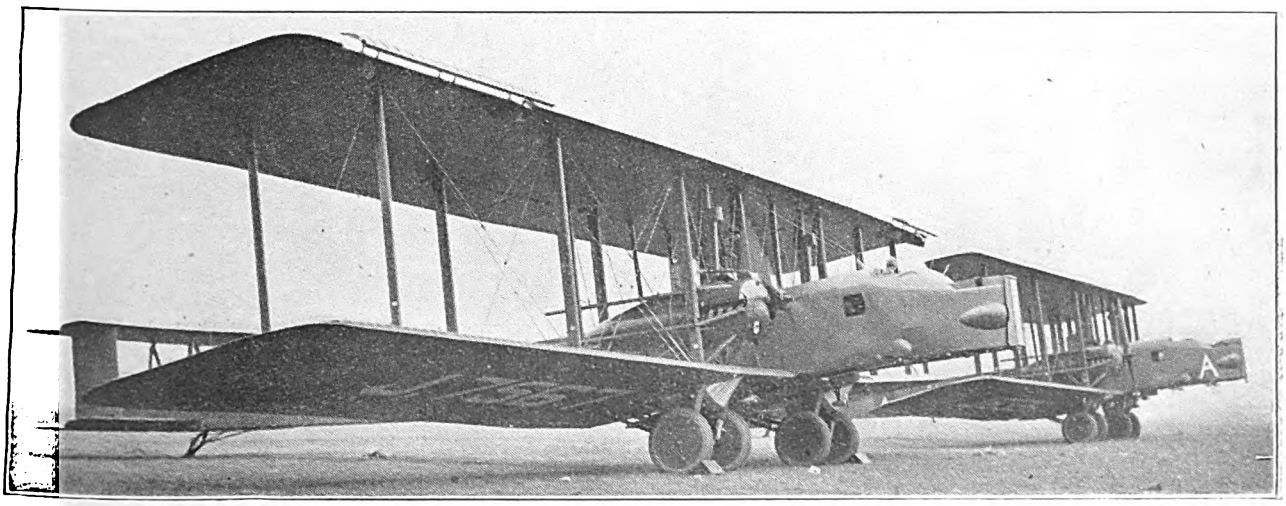
Several witnesses said they saw Sawyer flying low at Casthorpe, and John Mann stated that the machine struck a large elm tree, and shortly afterwards crashed.

The Coroner said it seemed that Sawyer was trying to give someone a friendly salute at a Casthorpe house. He was flying too low and did not realise he was in a hollow. A verdict of "Accidental Death brought about by an error of judgment" was returned.

The Air Ministry regrets to announce that as the result of an accident at Falmer, near Lewes, to a Siskin machine of No. 25 (Fighter) Squadron, Hawkinge, on Aug. 8, 1930, No. 364199 Sjt. Owen Herbert McNair, the pilot and sole occupant of the aircraft, was killed.

An inquest was held at Falmer, on Aug. 9. The following report is taken from *The Times*:—Flt. Lt. Sidney Toomer, of No. 4 (A.C.) Squadron, said that he had come down from Hampshire to arrange a demonstration of how single-seater fighters attacked troops on the march. McNair was flying one of the aeroplanes, and the demonstration was actually over when the crash occurred. Two aeroplanes had resumed flying formation and were waiting for McNair.

"When I first saw him," he continued, "he was flying very slowly and at a fairly low altitude, with his engine throttled down. As



THE BIG BOMBERS.—Two Vickers Virginia night bombers (two Napier Lion XI engines), one with automatic slots and one without. Machines of this type are taking part in the R.A.F. Exercises which are now being waged.

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soon as he had passed over the troops he commenced a right-hand turn and at the same time opened his throttle, but he had lost flying speed and crashed."

The Coroner asked whether he agreed that if McNair had not crashed he would have flown into the troops?

Flt. Lt. Toomer said he did not. He considered that it was an error of judgment. McNair was flying too slowly to make the turn. It has been said that McNair waved to the troops. I think that he was flying over them to say good-bye, and there is no truth in the suggestion that he was waving in order to give warning that he was about to crash.

The Coroner, addressing the jury, said that it was apparent from the evidence that there was no question of McNair having crashed in order to avoid injuring the troops. "It was an error of judgment, and it is extraordinarily easy to make one in such circumstances. The relatives may gain some measure of consolation from the fact that there are still gallant young men like McNair who hold their lives cheap in the performance of their duty. It would be a sad day for England if 'Safety First' ever became the slogan of our race." A verdict of "Death by misadventure" was returned.

Air Action at Peshawar.

Strong and continuous air action has been taken during the last few days against a large force of Afridis who have massed round the lower end of the Bara Valley with the object of making an attack on Peshawar. *The Times* correspondent in Simla, in a message dated Aug. 7, states:—

Between 5,000 and 10,000 Afridis bent on making mischief assembled this morning at the lower end of the Bara Valley, which debouches on to the Kajuri Plain at a point some 15 miles from Peshawar City. The intention of the commanders of the *lashkar* [force] was apparently to advance across the plain towards Peshawar during to-night. As every warning had failed to convince the Afridis of their folly, aeroplanes to-day have been subjecting them to a preliminary bombing, and ground troops have advanced to positions on the Kajuri Plain in readiness for eventualities.

During Aug. 6 and 7 two Squadrons of the R.A.F. bombed the tribesmen concentrated in the Bara Valley. The village of Sheikh Mohdi, north-east of the fort on the way to Peshawar, was bombed on Aug. 8.

The following communiqué was issued by the Government of India on Aug. 9:—

The air action against the Afridi *lashkar* in the lower Bara Valley and the Western end of Kajuri Plain, continued throughout Aug. 6 and 7. Some detachments from the *lashkar* went forward on the night of the 7th and 8th to an area south of Bara Fort. Various parties were engaged with military and Frontier Constabulary pickets, and they lost a few men killed, but small parties, totalling several hundred, penetrated into the Peshawar district and concealed themselves in the area south and south-east of Peshawar. Owing to the aerial bombing of the caves west of the Kajuri Plain, part of the main body of the *lashkar* also moved to other caves south of the Bara River.

Towards the evening of Aug. 8 one party was located in a tower in the village of Shahab Khel, three miles north-east of Bara Fort. On the approach of cavalry the party vacated the tower, and took up a position in gardens close by, where they were shelled by troops. Another party, about 250 strong, was reported to be in the village of Sorozai, about 2½ miles south-east of Peshawar Cantonment. It is reported that the intention was that the main body of the *lashkar* should deliver an attack on the night of Aug. 8 and 9, while the advanced parties already in the district created a diversion. According to latest reports from Peshawar no attack on the Cantonment or the city was made during the night of Aug. 8 and 9, and the *lashkar* is now believed to be dispersing.

Kohat reports that the seven dead of the Bizoti and the Feroz Khel Orakzai tribes, who were killed by the bombing in Bara, have been brought to their homes. These must have joined the Afridi *lashkar* on their way down from the Waran valley. Reports also show that the Tirah Adam Khel are trying to instigate the Hassan Khel and the Asho Khel to collect a *lashkar* to attack Nowshera. The Political Agent in the Kurram reports some activity among the Massozai and the Chamkannis.

Only one Squadron of the R.A.F. is stationed at Peshawar, No. 20 (Army Co-operation) Squadron, but there are two Bomber Squadrons at Kohat and two at Risalpur. The other Squadrons in India are two Army Co-operation Squadrons at Quetta and one at Ambala.

Air Cadetships.

The following have been declared by the Civil Service Commissioners to be the successful candidates at the competition held in June 1930 for admission to the Royal Air Force College, Cranwell. Their names are in order of merit and they have been found physically fit:—

Dathan, N. G.; Rhys, M. H.; Combe, A. N.; Rolfe, T. U.; Carnaghan, D. W. B.; Evans, D. R.; Middleton, L. M.; Peel, J. R. A.; Morton, C. C.; Lee, D. J. P.; Ross Shore, D.; de Pentheny O'Kelly, R. E.; Wyclif-Vasey, R. G.; Pelly, H. P. N.; Lloyd, C. R. D. L.; Leonard-Williams, H. G.; Burr, E. W.; Shaw, R. H.; Michell, D.; Morrissey, M.D.; Berens, R. J.; Burwood, H. P.; Rundle, E. H.

Extensions of Service.

The following officers have been selected for extensions of the active list period of their short service commissions:—

Medical Branch.—*Extension to five years*: Flt. Lt. C. W. Colley, L.R.C.P. and S., Flt. Lt. J. H. Cullian, M.R.C.S., L.R.C.P.

Chaplains' Branch.—*Extension to nine years*: The Rev. D. F. Stephens, M. A. *Extension to six years*: The Rev. R. N. Shapley, M.C.

The Auxiliary Air Force.

No. 601 (County of London) (Bomber) Squadron, Auxiliary Air Force, who are engaged in their annual camp training at Lympne have not been favoured with any particularly good weather conditions since their arrival from Hendon on Saturday, Aug. 2. Nevertheless, most of the intensive training which is the object of the camp, has been done.

On Wednesday, Aug. 6, when a number of Press representatives paid the Squadron a visit, normal training was going on despite exceptionally bumpy conditions and intermittent thunderstorms. Two flights were away at Eastchurch on bombing practice and the remainder of the Squadron were doing practice flying over the Lympne area, in Wapitis, D.H.9a's and Lynx-Avros. With the return of the two flights from Eastchurch, the morning's work was concluded with some excellent Wapiti formation flying along the Kent coast.

The Squadron is not yet fully equipped with Wapitis, as is No. 600 (City of London) with the result that squadron formation is a little mixed, including as it does, about four D.H.9a's.

The keenness of everybody and the general air of happiness prevailing is a point about the camp which impresses the visitor. A number of the pilots are private owners of light aeroplanes and about eight of these machines are in the hangars with the squadron machines and put in many extra hours after routine work is finished.

During the Air Exercises this week this squadron with two other Auxiliary squadrons will operate on a regular basis and will perform the full duties of a Regular Air Force bomber squadron.

THE AUXILIARIES.—The officer personnel of No. 601 (County of London) (Bomber) Squadron, Auxiliary Air Force, in camp at Lympne.—(*"Aeroplane" photograph.*)

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THE ROYAL AIR FORCE EXERCISES, 1930.

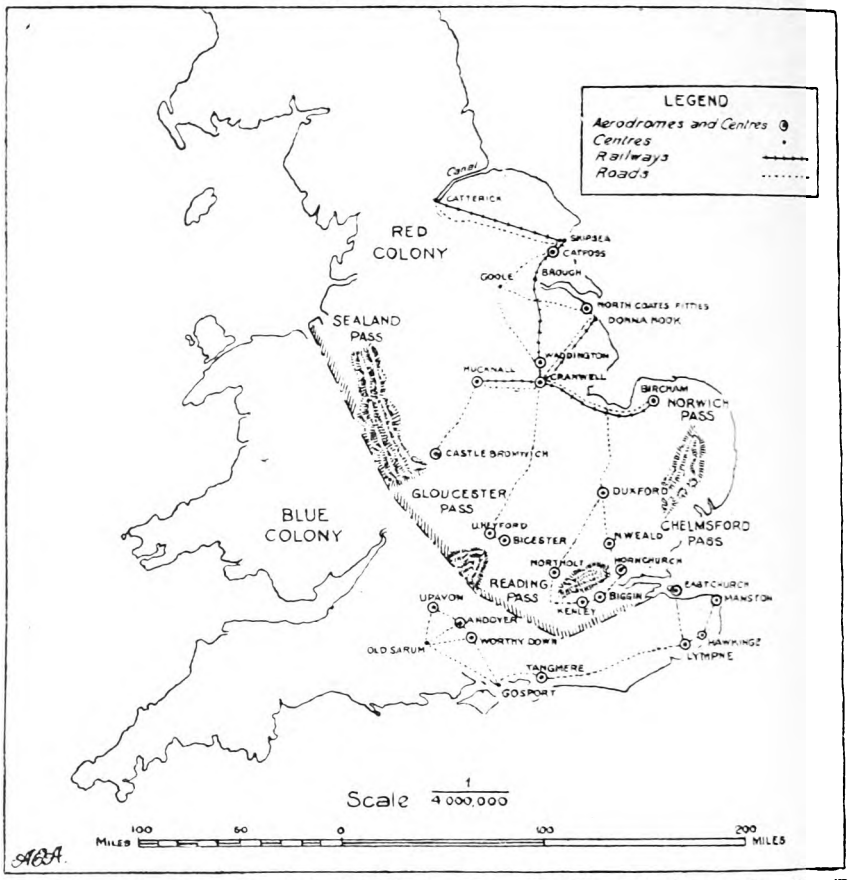
The 1930 Exercises of the units and formations of the Air Defence of Great Britain Command will be held between 11.00 hours on Aug. 12 and 05.00 hours on Aug. 16.

The object of these extended exercises is to give more opportunities for initiative in action by subordinate commanders than is possible in the smaller exercises which tend to become over-organised.

Although the units taking part in the Exercises this year are the same as those of the Exercises of 1927 and 1928, the scheme of operations is totally different. In previous years the objective has been to test the defence of London and the Command has been divided into attacking and defending forces.

This year practically the whole of England will represent a mythical island which will be known as the Island of Incognito. This Island is the colonial possession of two first-class powers, our old and warlike friends Redland and Blueland. Red Colony is represented by that part of England north of the line—Flint, Shrewsbury, Worcester, Newbury, Horsham, and Chatham. The country is sparsely populated and the inhabitants are unreliable.

Communications are poor outside the few centres where the main part of the inhabitants are collected, namely Cranwell, Hucknall and Bircham Newton. Red Colony contains valuable mineral deposits, and Hucknall and Bircham Newton are the rail-heads of the railway between the mineral areas and Catterick which is the port of anchorage and communicates with the sea by canal. Skipsea and Donna Nook are Naval anchorages and Ports of Debarkation for troops and military supplies. The defence of Red Colony is in the hands of a small but efficient Redland Air Force and a number of police posts on the frontier.



Blue Colony is an overseas possession of Blueland and is represented by that part of England south of the line already named. The population is mainly agricultural, the communications are bad, and the country is mountainous. The main centres of population are Old Sarum and Gosport, the former is the capital and the latter a small Naval base and Port of Debarkation.

Blue Colony is defended by small Naval and Military Blueland Forces, but Blueland has recently strengthened her Air Force in Blue Colony.

The frontier between the Colonies is mountainous, and flying is impossible over the four mountain ranges shown in the map. Roads exist between the principal towns in both Colonies with bridges where necessary. Neither Colony has any telegraph communication, but there is a telephone line along the line in Red Colony protected by sentry posts and patrols and unprotected telephone lines along all the roads in Blue Colony. The normal communication between Military and Industrial centres in both Colonies is Wireless Telegraphy.

In common with most wars, the cause of this War is somewhat obscure, but Blueland, having much to gain and little to lose, seems to be the aggressive party. Anyhow Blueland has sent an ultimatum to Redland which expires at 11.00 hours on Aug. 12. In fact unless the League of Nations intervenes, War will have broken out in the Island of Incognito before this issue of The Aeroplane goes to press.

The operations will be directed by Air Marshal Sir Edward Ellington, K.C.B., C.M.G., C.B.E., A.D.C., Air Officer Commanding-in-Chief, Air Defence of Great Britain. The Assistant Director is Air Commodore the Hon. J. D. Boyle, C.B.E., D.S.O., Chief Staff Officer, A.D.G.B., and the Directing Staff are composed of selected officers of H.Q., A.D.G.B., and attached officers.

Air Vice-Marshal H. C. T. Dowding, C.B., C.M.G., A.O.C. Fighting Area, is in command of the Air Defence Forces of Red Colony, which consist of the following Units:—*No.* 1 *N.B. Wing,* No. 10 (B) Squadron, No. 99 (B) Squadron: *No.* 2 *D.B. Wing,* No. 35 (B) Squadron, No. 100 (B) Squadron, No. 207 (B) Squadron: *No.* 3 *Ftr. Wing,* No. 3 (F) Squadron, No. 17 (F) Squadron, No. 19 (F) Squadron: *No.* 4 *Ftr. Wing,* No. 23 (F) Squadron, No. 32 (F) Squadron, No. 41 (F) Squadron: *No.* 5 *Ftr. Wing,* No. 29 (F) Squadron, No. 111 (F) Squadron: *One Aircraft Depot* (imaginary) at Catfoss. *Ground Forces*: 1st A.A. Searchlight Battalion, and mobile military posts on the frontier.

Air Vice-Marshal Sir John Steel, K.B.E., C.B., C.M.G., A.O.C. Wessex Bombing Area, is in command of the Air Defence Forces of Blue Colony, which consist of the following Units:—*No.* 51 *N.B. Wing,* No. 9 (B) Squadron, No. 7 (B) Squadron, No. 58 (B) Squadron: *No.* 52 *D.B. Wing,* No. 12 (B) Squadron, No. 33 (B) Squadron, No. 101 (B) Squadron: *No.* 53 *D.B. Wing,* No. 600 Squadron, No. 601 Squadron, No. 605 Squadron: *No.* 54 *Ftr. Wing,* No. 1 (F) Squadron, No. 43 (F) Squadron, No. 25 (F) Squadron. *One Aircraft Depot* (imaginary) at Tangmere.

These Exercises will give the Staffs and the Bomber Squadrons experience in directing and executing long-distance bombing raids under conditions which will allow considerable latitude of action. They will also give the Staffs and the Fighter Squadrons experience in conducting a strategic defensive under conditions likely to exist in an overseas campaign.

Interesting changes have been made in the equipment of some of the Squadrons since the Exercises of 1927 and 1928. In the 1930 Exercises the Bristol Bulldog single-seat fighter (Bristol Jupiter engine) is the equipment of two of the Squadrons of the Red Colony: the Boulton and Paul Sidestrand (two Bristol Jupiter engines) is the equipment of one of the Day Bomber Units of the Blue Colony; which has also the Hawker Hart (Rolls-Royce F. engine) as the equipment of No. 33 (Bomber) Squadron.

The results of the Exercises will be based on the loss or gain of man-hours, casualties being worked out from the targets with the *camera obscura*. Marks will be allotted for strategy and tactics rather than for actual casualties. Thus will honour be satisfied.—C. M. MCA.

AIR WAR IN CZECHOSLOVAKIA.

Air exercises are at present being held in Czechoslovakia and several towns on the northern frontier have had demonstrated to them the horrors of the future "War in the Air." The inhabitants had been instructed in the art of self-effacement on the approach of "enemy" aircraft but their curiosity destroyed all illusions of war.

On the approach of the raiders the citizens, instead of retreating to their cellars or flinging themselves to the ground, flocked into the streets and gazed upon the inspiring spectacle of aircraft flying in formation. Fortunately for them the attack took the innocuous form of showers of papers upon which were written the kind of bombs which the aircraft carried, with graphic notes of their potential destructiveness.

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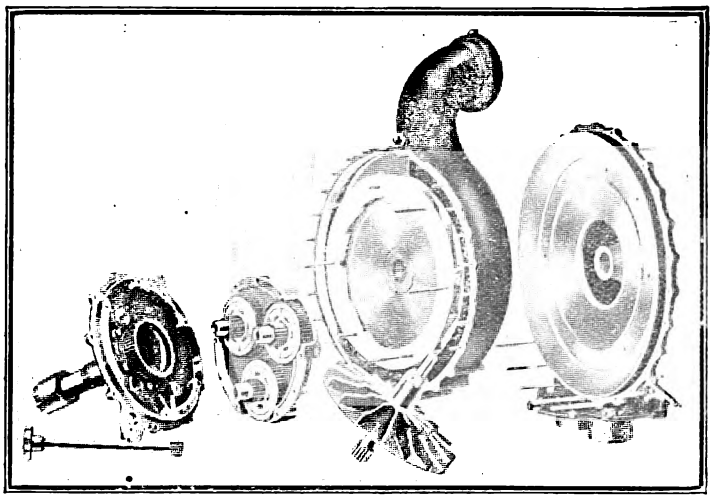

ADVANTAGES OF THE ROLLS-ROYCE 'F' AND 'H' ENGINES

(L)—Supercharger

The simplicity and compactness of the Rolls-Royce Supercharger is clearly indicated in the above illustration. Its reliability and durability have been demonstrated by succcessful passing of several Air Ministry Type Tests.

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"THE SAILPLANE AND GLIDER."

About a year ago THE AEROPLANE started the gliding movement in the country by publishing a number which was chiefly devoted to gliding, and by organising a lunch at which the present existing British Gliding Association came into being. This was really a resuscitation of the movement which fizzled out in 1922, although some of the present generation of gliding enthusiasts possibly think that gliding was invented in Germany in 1928 or thereabouts.

At the time we of the staff of THE AEROPLANE believed that the new gliding movement would develop into a serious effort to use gliders—or, to use the more apposite German term, sailplanes—as a means of studying air currents on the one hand and aerofoils on the other. Such study would have been, and may still become, a valuable aid to the development of flying as a means of transport,—as an antidote to the method, developed by war-time needs, of getting increased performance by merely jamming on more and more power.

This line of development has made but little progress in this country. But gliding as a very much-glorified form of tobogganing, purely as a sport, has made considerable progress. And, because gliding for fun is undoubtedly a good introduction to serious flying and gives opportunities of contracting the air habit to masses of people who cannot afford to fly in power-driven aeroplanes, the gliding movement deserves encouragement.

Nevertheless, gliding for sport is so far removed from actual flying, which is the science, trade or sport, for which THE AEROPLANE exists, that we cannot spare space in this paper to deal with it. So much serious flying is being done all over the World, and there are so many aspects of it, political, military and technical, to be discussed, that a paper four times the size of THE AEROPLANE could easily be filled every week if the Trade, the advertisements of which are the only source of income for a paper of this kind, could afford to support it. And every inch of space given to gliding deprives the readers of this paper who are not interested in gliding of information which is of direct importance or interest to them. And they resent it.

Therefore we have decided to deal with the gliding and soaring movement in a separate publication, and in a way in which it could not be handled as a side-line on sufferance in THE AEROPLANE. This publication will be known as THE SAILPLANE AND GLIDER, and the first issue will appear in the first week in September.

The name SAILPLANE has been chosen in the hope that it may encourage the aerial tobogganer to aim at higher things. If they cannot quite hitch their wagon to a star they may at any rate aspire to hitch their sailplane to a cloud, after the manner of Mr. Kronfeld.

To meet the pockets of the younger generation the price has been fixed at *three-pence* per copy. And because that price will not stand any trade discounts THE SAILPLANE will be sold by subscription only. That is to say, it will only be obtainable from this office, and not from newspaper shops.

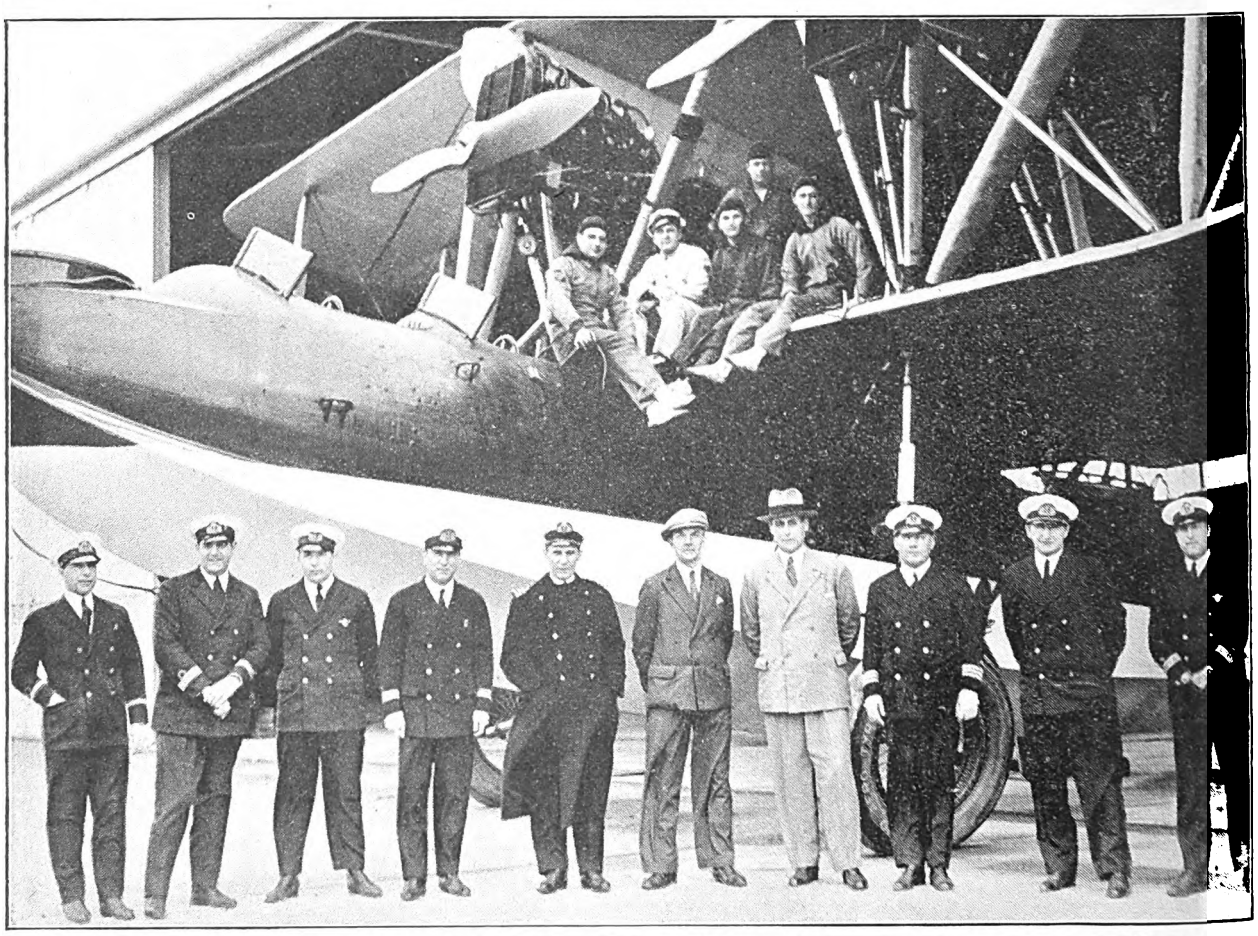
The subscription rate will be three shillings for three months *post free*. And single copies may be had for 3½d.

Those who want copies of the first issue are asked to let us know as quickly as possible, because the number printed will depend on the number ordered. And those who wait to see somebody else's copy of the first issue will not be able to get one for themselves. Orders should be addressed to:—"THE SAILPLANE, 175, Piccadilly, London, W.1."

THE SAILPLANE will have to depend for its existence on the reality of the gliding movement. If soarers and gliders want it we shall continue to produce it. If there is not enough support for it we shall drop it.

Readers must remember that there is no well-to-do Trade to support a sailplane paper for the benefit of the Trade. THE AEROPLANE is only possible because the advertisements pay for the loss on the sales. Each copy costs over 1s. to produce, it sells retail for 6d., and by the time wholesale discounts are deducted we only get about 4d. for it. We *cannot* expect any considerable advertisement revenue for THE SAILPLANE, so it must live on its sales. And, equally, buyers of THE SAILPLANE must not expect a paper the size of THE AEROPLANE for 3d.

But, we can at any rate promise to give readers all the news of the various gliding clubs, and of the latest developments in gliders and sailplanes all over the World. THE SAILPLANE may only be a pamphlet at first. But if the soaring movement soars as its enthusiasts hope it will, then the paper which is to be devoted to that movement will soar with it.—C. G. G.



BRITISH TRADE OVERSEAS. — H.B.1, the first of the consignment of Supermarine Southamptons (Lorraine Dietrich engines) delivered to the Argentine Navy. The personages standing are, left to right, Paymaster, Doctor, Lieut. Aumann, Lieut. Lepnace (Pilot of H.B.1), Commander Monti (in charge of Air Station), Mr. B. Powell (of The Supermarine Aviation Works Ltd.), Commander R. Fitzsimon (lately Argentine Air Attaché in London), Commander Jensen, Lieut.-Cdr. Cappers, and Lieut. Mason Lugones.

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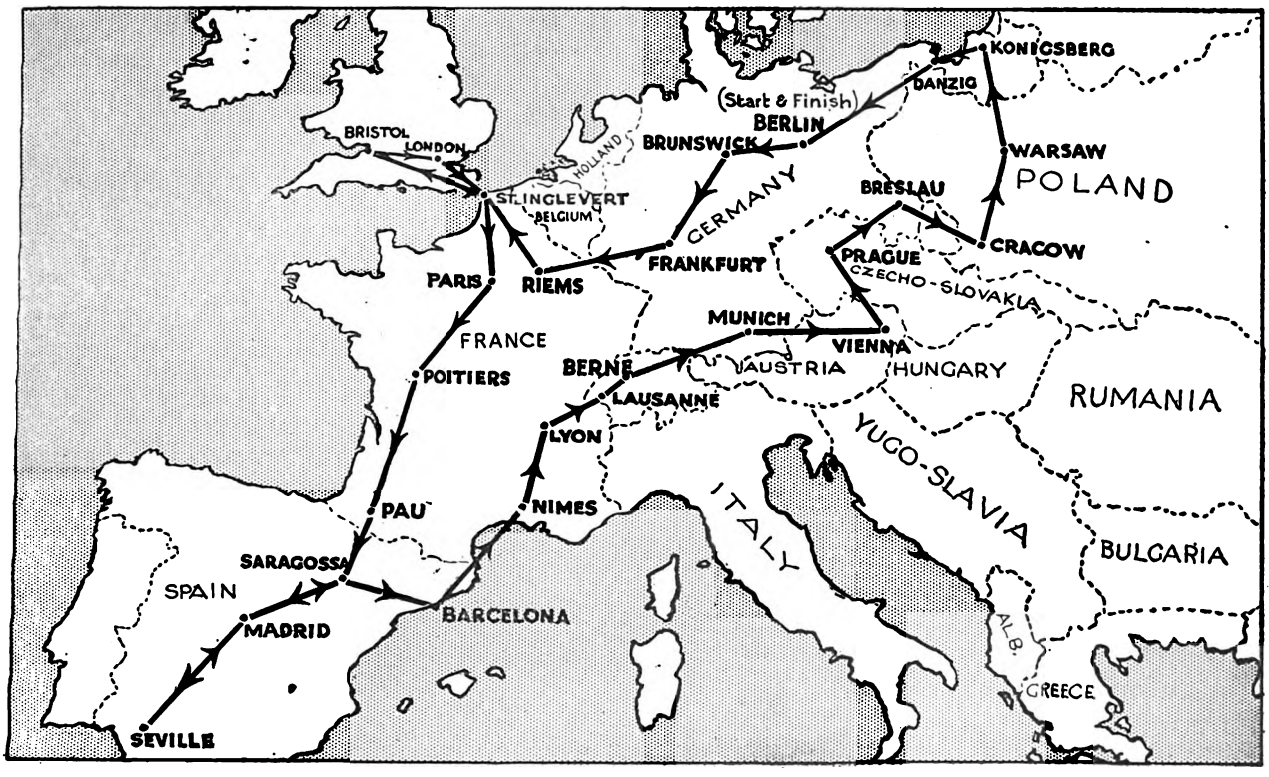

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(Klemm-Argus) 423 points

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(Klemm-Argus) 419 points

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The winner, Herr Morzik, also used

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R.100 IN CANADA.

On Aug. 5 the Air Ministry issued the following report on R.100:—

The Director of Airship Development reports from St. Hubert, Montreal, that the 200 square feet of fabric required for the fin covering of R.100 was made up and delivered by Canadian Vickers within 24 hours; but the fitting of the fabric at the tower has been delayed by strong winds on Sunday afternoon. He hopes, however, that it will be finished by Wednesday evening.

It is proposed to visit Toronto and Ottawa, carrying Press representatives and technical aviation officers, if suitable conditions for the flight occur before the return flight of R.100 to England. In the meantime, the airship is being inspected at the tower by Members of Parliament, officials, and representatives of technical interests.

An amusing incident of the public inspection of the ship concerned Mr. Bray, the Chairman of the Montreal City Executive. When he arrived at St. Hubert on Aug. 8 to inspect the ship he was ordered by the military on duty to take his turn in the public queue. He showed his card and expostulated with the guardians of the entrance but they refused to give him any preferential treatment. After a short wait he returned to the city and as a reprisal withdrew the 900 city police which were on duty at the Airport at a cost to the city of £200 a day.

Mr. J. A. Wilson, the Controller of Civil Aviation, when he heard of the incident, offered his apologies, and Mr. Bray thereafter agreed to allow the police to resume duty at the Airport on the following morning. He intimated, however, that he intended to absent himself from the civic banquet that was to be held on Aug. 8.—Which only shows that Bumbledom in Canada does not differ very much from Bumbledom in any English village.

R.100 left Montreal at 18.00 hrs. on Aug. 10 for a flight over Ottawa, Toronto, and Niagara Falls. Her departure was watched by a huge crowd, and it was estimated that over 40,000 cars alone transported spectators from all parts of Canada and the United States. The procession of cars at one time stretched from the aerodrome to Montreal, a distance of 15 miles.

Her arrival over Ottawa was watched by hundreds of thousands of people, who thronged every vantage point in the city to see her. The Parliamentary carillon played "Rule Britannia," and the multitude cheered enthusiastically as the airship cruised over the capital in the moonlight. Wireless conversations were exchanged between the R.100 and Mr. Bennett, the Prime Minister, and the Mayor of Ottawa.

More than half a million people watched her fly over Toronto, and similar enthusiastic crowds greeted her passage over Hamilton, Kingston and Niagara.

After passing over the Niagara Falls, R.100 crossed the border into New York State and dipped in salute to the cheering thousands there.

She returned to her mooring mast at Montreal at 15.55 hrs. on Aug. 11.

Although Aug. 14 has been fixed for her departure for England it is possible she may leave earlier if the weather is suitable.

Souvenir hunters removed so many of the drinking glasses from the ship during the time she was open for inspection that a new supply has had to be ordered for the return trip.

IT WAS SO.

To all those earnest seekers after knowledge who declare that they saw over London and along the Thames Valley a queer breed of biplane flying-boat with a single tractor airscrew and what appeared to be an oversize bowsprit shortly after opening time (but too short to allow for much distortion) last Saturday evening, may rest assured that it was so.

The machine was a Loening amphibian (425 h.p. Pratt and Whitney Wasp engine) which had made the Atlantic crossing in the *Leviathan* as excess baggage for Mr. Marshall Field and was being flown up from Southampton to Croydon.

Mr. Marshall Field, who is the Department Store King of America, is shortly marrying Mrs. Dudley Coats, and the Loening amphibian will be used for a honeymoon expedition to darkest Africa to hunt big game.

THE AIR ROUTE TO THE ULSTER T.T. RACE.

In spite of the very bad weather last year quite a number of aircraft went over to Ulster for the T.T. Road Race. This was rather unexpected, because there are very few facilities on the route, which is liable to suffer from the effect of depressions on their way to Scandinavia.

In the last two months there has been a marked increase in air traffic to Ireland, and most pilots appear to prefer the northern route with its short sea-crossing to that by Holyhead with its 60-odd miles of sea.

For those who have awakened to the manifest advantages of air travel over the discomforts of all other forms of transport the route to Ulster on August 23 this year should be a real vindication of their opinions. It should be any air pilot's joy to watch the sleepy travellers staggering out of a train at Stranraer at six in the morning after a nine hours' train journey to clamber on board the Larne boat. After a jolly sea crossing, which can include breakfast or the reverse, there is another hour's recuperative rail journey before the nineteenth-century traveller reaches Belfast at the brisk hour of half-past eight.

HANDS ACROSS THE AIR.—Admiral William Moffett, U.S.N. (Commanding the U.S. Naval Air Service), congratulating Major G. H. Scott, C.B.E., Assistant Director of Airship Development, after arriving at Montreal in the R.100.

The air traveller can leave London at the hour of his choice and be in Belfast five hours later. This includes the unfortunate car journey from Aldergrove to Belfast, which is due solely to the fact that Ulster showed its unfailing enterprise a trifle before its time. If people think that Belfast is behind English municipalities in providing itself with a central Airport, they should remember that Malone Aerodrome cost Belfast £11,000 long before any municipality in England had dreamt of having an aerodrome. It was the Anglo-Saxon technical adviser to Belfast who let them down and also gave them a sickener that a recent plebiscite of the taxpayers in Belfast voted against subscribing even £200 a year to enable N.F.S. to establish an Airport there. Those who remember this little piece of history will appreciate the irony of the situation.

The route to Belfast by the North Channel has always been devoid of adequate facilities for aircraft. This drawback, which time will remove, has been overcome this year with the help of the A.A.

Hooton Park, Barton, or Blackpool (Squire's Gate is the only aerodrome at Blackpool which has a petrol pump) are the last civil aerodromes on the route from London. Emergency landing-fields have been arranged at Lancaster, Dumfries and Stranraer.

At this last place the landlord of the King's Arms, Mr. MacRobert, who was formerly in the Air Force, has been enthusiastic in the past in giving service to passing pilots. Stranraer is the hopping-off place for Northern Ireland, and those who may be deterred by the weather from making the sea crossing will find adequate consolation at the King's Arms. The A.A. have made arrangements to supply

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Mr. MacRobert with weather reports from Aldergrove, so that pilots need not keep leaving the fire to look at the sky.

The A.A. are to be congratulated on bringing about a rare piece of co-operation between Government Departments. By the courtesy of the Air Ministry, the G.P.O. and the Board of Trade they have contrived a signalling service across the North Channel similar to the one across the English Channel. It is to be hoped that pilots will treat this service with rather more consideration than has been accorded to the English Channel service. One can assure them that they will find a form of efficiency in the North of Ireland entirely different from that which they have sometimes suffered in the North of France.

Aircraft can circle Portpatrick Coastguard Station on their way to Ireland and their departure will be wirelessed to Aldergrove. After crossing the Channel they can circle Black Head Coastguard Station and their arrival will be telephoned to Aldergrove.

On this side of the water the Board of Trade have permitted the Coastguards to co-operate in this service. When the same assistance was asked of Commander Kilgour, who is in charge of Coastguard Stations in Northern Ireland, he was not satisfied with granting the help of his station at Black Head, but said that he would instruct all his other stations on the coast to keep a look-out and report all passing aircraft to Aldergrove in case any of the pilots lost themselves. There is nothing half-hearted about the Ulster folk.

A similar service has been arranged for the return journey, and particulars of this can be obtained from the A.A. representative on the aerodrome at Aldergrove.

Unless one is mistaken about the enterprise of those who have entered aviation since last year, the Ulster T.T. Races should combine the wild pleasures of a successful air meeting with the still wilder pleasure of an Irish road motor race. People who want more excitement than that should be locked up as being too dangerous.

ON GOING T. T. (A REMINISCENCE OF 1929).

By Sandy McTavish.

"Pilot battles with roaring monster.
"The pilot was seen to be in difficulties.
"Airplane in tailspin (American speciality).
"Airman's death dive.
"The Press photographer was rushed to the scene.
"The Airman's mother, in an interview . . . ."

While the penny Press does its stuff, aviators can remain heroes without difficulty or inconvenience. It is the amateur hero who will kill this romance: the man who to-day buys his Moth and after 10 hours' solo sets off on his first tour, *via* Paris, Poitiers, Perpignan, Pisa, Pest, Praha, Poznan and back to Sergeant Dupe again. This is becoming too common to be heroic; it is a dark future for our great pilots.

It was ominous, as well as magnificent, when the Duchess of Bedford acted as assistant pilot to Mr. Charles Barnard, for, if it be impossible for a man to be a hero to his own valet, it would be too paradoxical for a lady to be a valet to her own hero. National Flying Services, who are too far-sighted for most of us, have grasped the significant trend of affairs, for they have put their heroes into livery.

Nevertheless, the 17th of August was a hero's day in Ulster, for only two amateurs, flying for their own pleasure, went to see the T. T. All the rest were there on duty. The pleasure of getting there was insignificant, for Croydon's diagnosis of the weather was that the conditions were as bad as they could be expected to be in Summer. This was an understatement.

When I reached the A.A. landing ground at Lochans there were two machines on the field. One belonged to the Linnell brothers, whose personal charm has done so much to place the Northampton Aero Club in the front rank of all the clubs, and the other, piloted by Ledlie, belonged to busy Northern Air Lines. I found these three in the King's Arms at Stranraer polishing off, at six o'clock, a trifling little meal which they called tea, and had begun at 2.30. They said that they were waiting for the weather to clear; that was reasonable enough in all conscience. I think they were also waiting for the Scotch girdle scones to clear, and that was reasonable to the point of unconsciousness.

There is no wearing out the patience and resource of Mr. MacRobert of "The King's Arms." We loaded him with telegrams to send; we made him carry his wireless from room to room so that we could hear the weather forecast (it sounded like the state of the coffee crop in Cuba); we made him see to our fuel supplies, and then we made him send us back to the landing ground.

Even then he seemed to feel that he was not doing enough for us. We, down in the South, occasionally use the word "hospitable." I believe the Scots never have occasion to use it; they just are.

In a blinding mist of heavy rain we groped our way to our machines. There was a depression over Southern Scotland. The Linnells took the evening boat to Larne; Ledlie and I decided to cross at "sparrow" next morning. Mr. Clanachan, the owner of a house overlooking the landing ground, offered us hospitality for the night.

Ledlie, during that pleasant evening, won my admiration by his knowledge of the local dialect. It was only later that I learned that he was from Co. Down, which, even if it did not help him to speak the Scottish tongue, made it easy for him to be unintelligible to me. He has a way with him, a rare and pleasant thing, for it brought out the interesting side of all whom we met at Lochans.

Mr. Clanachan showed us the cups he had won push-bike racing, a sport that many of us in this country are not old enough to remember. Miss Clanachan showed us her bandaged hand from which her motor-cycle had removed two and a half fingers. I could not help admiring the courage and cheerfulness with which she faced this loss; she was a music teacher.

We left Lochans at about half-past seven and had clear weather for the odd twenty miles of water. On reaching Ireland I noticed without enthusiasm that the clouds appeared to be at least 200 feet below the surface and that Aldergrove would have to be reached through fifteen miles of muck. Ledlie's destination was Rimmer's joy-riding field at Groomsport, sufficiently near the coast to be free of cloud, so I followed and landed there too.

We had breakfast *chez* Mr. Ellis the grocer—bacon and eggs and soda-bread. I shall not tell you about Mr. Ellis, because I think it is your duty to make his acquaintance for yourself, unless you have no sense of humour. Indeed, if you feel in the least doubtful about it, first call at the pub opposite and drink a few Guinness. It is impossible to guess what Guinness can be like until you go to Ireland. They keep it jealously to themselves. It may be good for you, and I won't go so far as to deny it,—but I am certainly and personally good for a Guinness at any time.

My appreciation of the T. T. was marred by the discovery that the competing cars were slower than the Belfast 'buses, even including stops to pick up passengers. Secondly, I could not give my undivided attention to the race owing to the fact that I was introduced to the name McGugan. That name has the most marvellous sound of any name I ever heard. I wish it were mine.

Next day, with fear and misgivings, I set out for Aldergrove on the annual fine day over good-looking country. The tales of Aldergrove aerodrome do not inspire confidence; even the *Air Pilot* forgets itself and becomes lyrical on the dangers that beset the unwary pilot. What with ridge and furrow, depressions in this corner and slopes in that, bogs, marshes, drains and general unserviceableness, landings should be effected in the next field. I found it utterly unworthy of its reputation. Croydon is much worse.

Everything went smoothly there, except that mineral oil was unobtainable nearer than Antrim. This, I believe, will soon be remedied. There was no rubbish about clearing Customs for Baldonnel. I had grave suspicions that even the reverse journey was not very formal, but I know nothing of it. I hope nobody else does.

The flight down to Baldonnel was pleasant. There is a quality in the Irish atmosphere that lends the most pleasant colours to an otherwise unspectacular countryside. In the North it is hard to find a field in which a sane person would choose to land. Once you are over the border almost every other field clamours to be an aerodrome. I disgraced myself at Baldonnel by making an execrable landing, for it is a beautiful aerodrome, deserving better things.

Nevertheless I was glad, for it confirmed my intention of entering humbly and appreciatively somebody else's country. I was afraid that I might become Balkan-minded. The signposts in two languages made me laugh, but nationalism has to have its teething troubles. On the other hand, the coinage was a delight, with its horses and greyhounds. There is nothing like coinage for making you travel-conscious.

Aldergrove had wired our departure so that Customs officers were already on their way from Dublin—something like seven miles. I began to reckon up the price of all this. It was Sunday, which would be costly. Then there would be the double taxi journey. Then there would surely be a fee, or the price of a stamp or two, or one might have to stand the racket of a few forms. It could hardly cost less than thirty shillings. It cost nothing.

I pointed out to the Customs gentlemen that their practice was hardly in conformity with that in other countries, notably England.

"A-a-ah!" he replied in disdain. "Sure, you're in the Free State."

And that was not the best that Baldonnel did. They housed my Moth unfolded for 2s. 6d. for the night and filled it up with petrol at 1s. 9d. a gallon. Our service aerodromes please copy.

The whole atmosphere was one of delightful tolerance. As I had approached the aerodrome I made the customary

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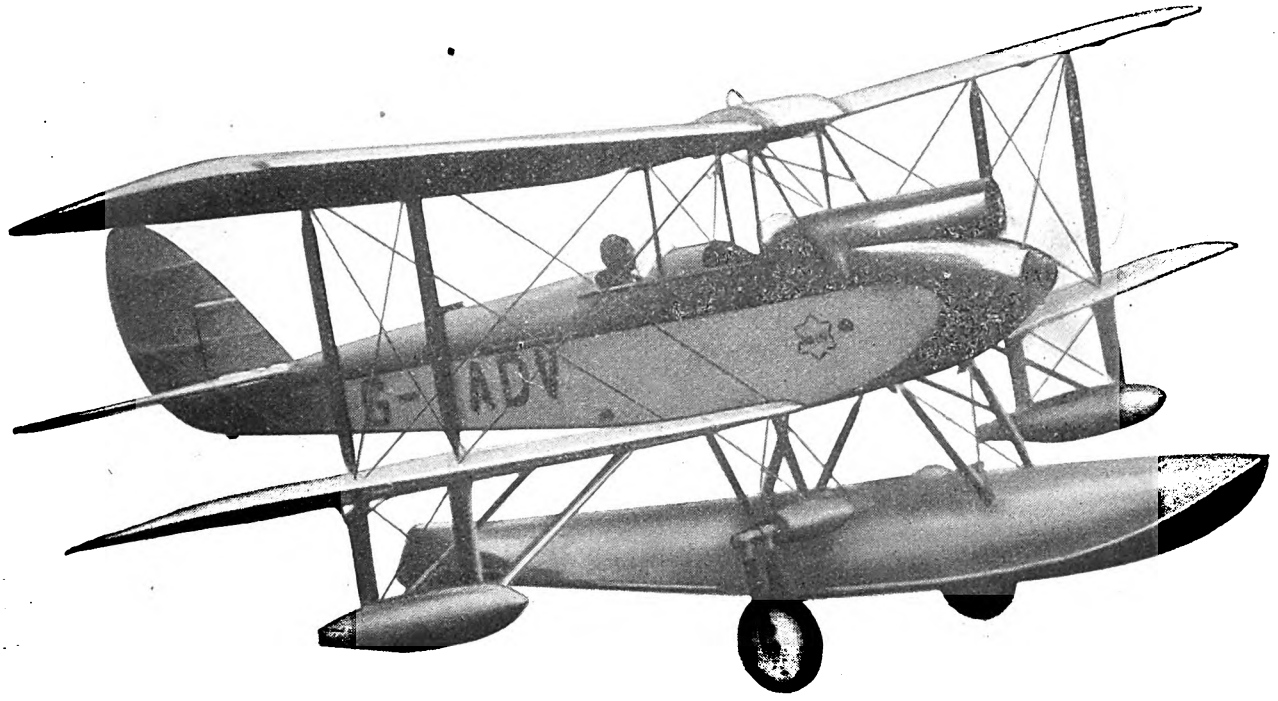

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left-hand circuit, in which I was hampered slightly by an Avian making a right circuit and landing in front of me. I was prepared to be apologetic for ignoring the local regulations, but I was reassured by an officer, who told me that a left-hand circuit was correct.

"Then the other fellow was wrong," I said.—"No, *you* were right."

I made an interrogative face.—"That was the C.O.," he explained.

In Dublin there was a tram strike. I believe that people who know Dublin well will appreciate what that means. I cannot comment on it, but I enjoyed my day there. I gradually built up the conviction that here was a town that must be seen again, despite the smell that emanates from the Guinness works. It is one of those rare smells that are so bad as to be funny. In fact, I can pay no higher compliment to Dublin than to say this: it is worth flying over sixty miles of water in a single-engined land machine to get there. You do not have to pay entertainment tax for that!

[It isn't Guinness's Brewery. It is only the natural smell of the River Liffey, which leaves Dublin's sewage on its banks at low tide.—C. G. G.]

I am going to lay myself open to a fine or to arrest by the following confession I decided to clear Customs at Wythenshawe, and, hoping to save delay on arrival, dropped a message bag at an A.A. box near Llandudno announcing my arrival in an hour.

That was a misdemeanour. Message bags may not be dropped from aircraft engaged in international navigation. I forgot that.

The message took ten minutes to get through and I arrived fifty-five minutes later. There were no Customs people on the aerodrome, as they were apparently not on the 'phone.

Ledlie, who met me, seemed not at all perturbed and did everything to make life pleasant. It being then late, I stayed the night at an amazing hotel in Manchester. If you have any misplaced pride in the achievements of man you should go for a cure to Manchester. After that you can graduate to Stoke-on-Trent. If London is going to look to-morrow like what Manchester looks to-day, I am going to live in Dublin.

Outside my window there was the Church of the Holy Devil. Unless—unless, indeed, the Devil is not so black as that Church. What pride the parishioners must feel in that coal-black monument.

I breakfasted next morning surrounded by a pungent smell in a tiled vault by artificial light to the roar of a ventilating fan which was a boastful lie. Good old Manchester!

Nevertheless it would be unfair to gloss over the fact that the charges that Northern Air Lines levied on me were lower even than Baldonnel.

On the merits of the two routes to Ireland it is hard to pronounce. It really resolves itself into the question, would you prefer to fall into a channel 20 or 60 miles wide? It will probably be decided by Lamplugh, of the British Aviation Insurance Group.

MISS AMY JOHNSON.

On Aug. 11 H.M. the King was graciously pleased to receive Miss Amy Johnson at Buckingham Palace and to confer on her the C.B.E. which he had awarded to her for her flight to Australia.

Later she left Stag Lane in her D.H. Moth *Jason* for Hull, where on arrival she was given a great welcome, both at the aerodrome and later at the City Hall.

At night she attended a banquet at the Guildhall. The Lord Mayor, Mr. R. Richardson, presented her with an illuminated address in a silver casket and a silver globe showing the route of her flight.

Miss Johnson is reported as having announced that the balance of a public subscription made on her behalf would be devoted to providing bursaries for courses in aeronautics. But no information has been published about what was the income and what was the expenditure which produced the balance.

DESERVED APPLAUSE.

A lunch to welcome Miss Amy Johnson, C.B.E., was given by the Proprietors of the *Daily Mail* at the Savoy Hotel on Aug. 6. The Hon. Esmond Harmsworth was in the Chair and the company included "Distinguished Representatives of British Youth and Achievement in all Activities of life." Other guests were those, according to the *Daily Mail*, now past the first flush of youth, who in their day carried the banner of Britain in the van of achievement."

The representatives of Youth could be quite easily distinguished from the rest of the company because they seemed unaware that it is customary to refrain from smoking until after the toast of His Majesty the King has been honoured.

Mr. Harmsworth, proposing the health of Miss Johnson, said that her epic story had gripped the hearts of everyone. He told the now well-known story of her great flight and said that she possessed faith in herself. He paid a graceful tribute to the pioneers of aviation and representatives of other achievements who were present and then presented Miss Johnson with the *Daily Mail* cheque for £10,000 and a gold cup to commemorate her flight.

Sir Sefton Brancker presented Miss Johnson with a certificate of honorary membership of the Guild of Air Pilots and Air Navigators of the British Empire of which he is the Master, and said that she was the first woman to be an honorary member of the Guild. Her success had been due to enthusiasm, determination, and thoroughness.

Sir Philip Sasscon, on behalf of the Royal Aeronautical Society, the Royal Aero Club, the Society of British Aircraft Constructors and the Air League of the British Empire, congratulated Miss Johnson and said that her flight had more than earned the gratitude and respect of those who had the welfare of British flying at heart. Miss Johnson, by her bold, skilful and successful flying had shown what might be expected in time in the ordinary normal course of Imperial communications. She did not come from a completely air-minded family, for a less-famous Johnson,—the Doctor of Fleet Street fame—writing to a friend in 1784 about a man who had been up in a balloon said that the experiment was bold and deserved applause but he had rather find a machine that could ease an asthma.

Miss Johnson replying, expressed her pleasure in meeting so many distinguished people. She hoped that the Youth of Britain were going to do something big together for England. She thanked the *Daily Mail* for the £10,000 cheque and said that she was going to work for eight months on its staff. She thanked Sir Sefton Brancker for his encouragement before the flight and said that she would do her utmost to become not an honorary member but an ordinary member of the Guild. She believed in taking every precaution possible and then taking every risk.

Private flying was doing very well in India but everyone there was waiting for the Puss-Moth because in India everyone travelled with a bearer.

Discussing her homeward journey in an Imperial Airways machine Miss Johnson said that if she had been in a Dutch aeroplane she would not have been three hours late at Croydon. (Which, if it were true, was hardly kind to Imperial Airways and the taxpayers of this country who were her hosts on this trip.)

She ended by appealing to the Youth of the Country to help her to support and encourage flying in England. (And even the ranks of pioneers could scarce forbear to cheer!)

Mr. J. H. Thomas, the Lord Privy Seal, proposing the health of the Chairman, observed on behalf of His Majesty's Government, that Miss Johnson's income had increased by the interest on £10,000. He warned her not to be too keen on breaking records and pointed out that the Government had broken the unemployment record. (Hardly a matter for boasting one would have thought.) On behalf of the men present he welcomed this wonderful year of female enterprise but asked them to remember that there was life in the old dog yet. Miss Johnson had performed a wonderful deed but she should not forget that right down throughout history there had been men and women who had performed wonderful deeds but who in their day were not appreciated as she had been. To the Chairman he said that Mr. Harmsworth had inherited a name that was responsible for great achievements in journalism and his speech had encouraged the belief and knowledge that he was not unworthy of a great Trust.—C. M. MCA.

BUSINESS IS BUSINESS.

From *The Observer*, Aug. 10:—

Sydney, Saturday.

Miss Amy Johnson has issued a writ through a firm of local solicitors, claiming £200 against the proprietor of the Palais Royal dance hall. This sum is alleged to be a fee which it was arranged to pay for her presence at a special ball during her stay in Sydney after her solo flight from England.

From *The Sunday Express* (Mr. Swoffer), Aug. 10:—

The Australian papers which criticised Amy Johnson stated that, when she was the guest of honour at a Sydney theatre, she received a gift of £100 each time, and added, "She was invited to visit other theatres, but did not even go. No £100, no Amy."

A PITY.

The *Manchester Guardian* of Aug. 7 states:—

Miss Winifred Brown, winner of the King's Cup for the recent Round-England flight, is going on the variety stage and will appear at the London Coliseum on Monday week, August 18. Miss Brown, in flying kit and with her winning aeroplane beside her on the stage, will describe the race to the audience. She is booked to appear at Stoll theatres in Manchester and Bristol.

[Almost everybody in British Aviation will be very sorry to hear this. Surely there is someone in Manchester who could have told Miss Brown that such things are not in the best interests of Aviation.—C. G. G.]

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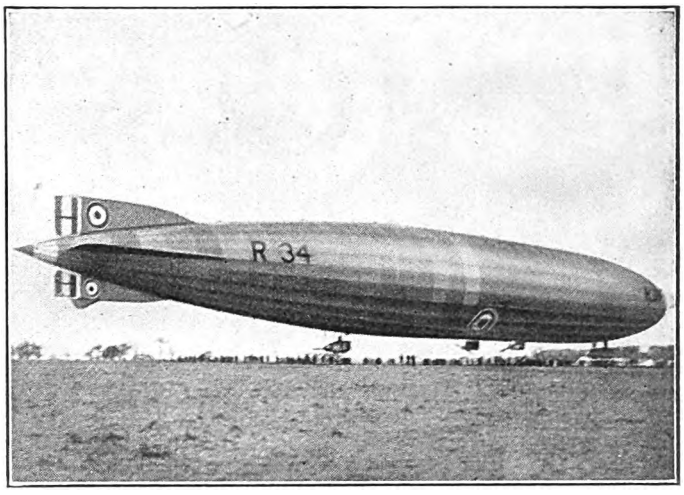

Photo "The Aeroplane"

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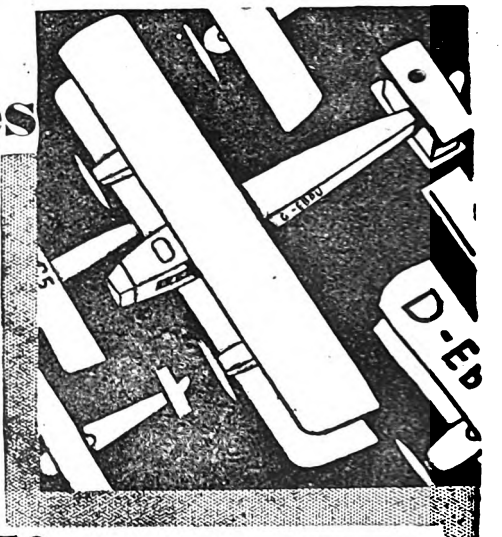

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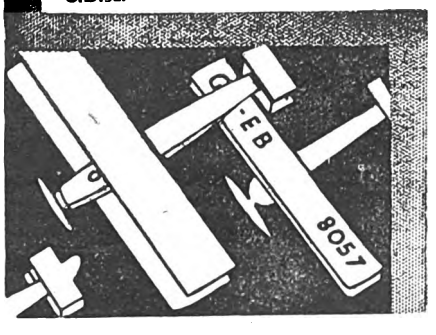

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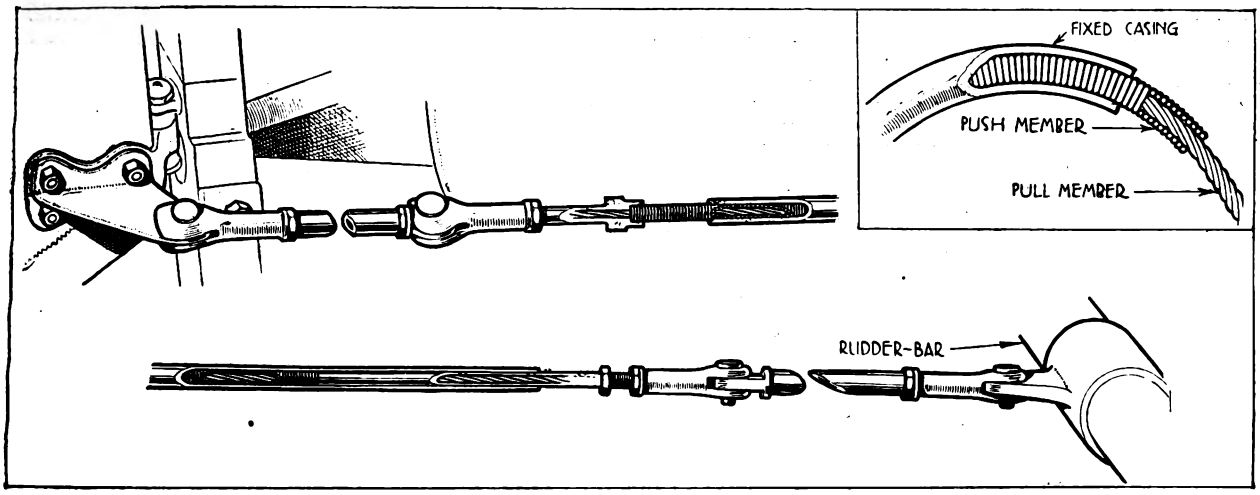
TRADE NEWS

THE ARENS CONTROL.



A RIGID CONTROL.—The end fittings of an Arens rudder control as used on the Puss-Moth in which Mr. C. D. Barnard flew from London to Malta and back. In the top right-hand corner is a section of the Arens control unit showing its essential components.

When Mr. C. D. Barnard piloted Her Grace the Duchess of Bedford to the Cape and back in twenty-one days, *The Spider* was fitted with Arens system for the engine controls.

In Mr. Barnard's last great flight when he flew to Malta and back in under 28 hours, the Arens Control Unit achieved even more prominence, for in this D.H. Puss-Moth the system was used not only for engine, but also for flying controls. Indeed this Puss-Moth is the first machine with the Arens Unit used throughout the flying controls to be granted a Certificate of Airworthiness by the Air Ministry.

Also, when the then unknown Miss Johnson took off for Australia, her D.H. Moth was fitted with the Arens system for the engine controls. And Arens interest in the flight went further, because Arens Controls Ltd. contributed to Miss Johnson's organisation fund.

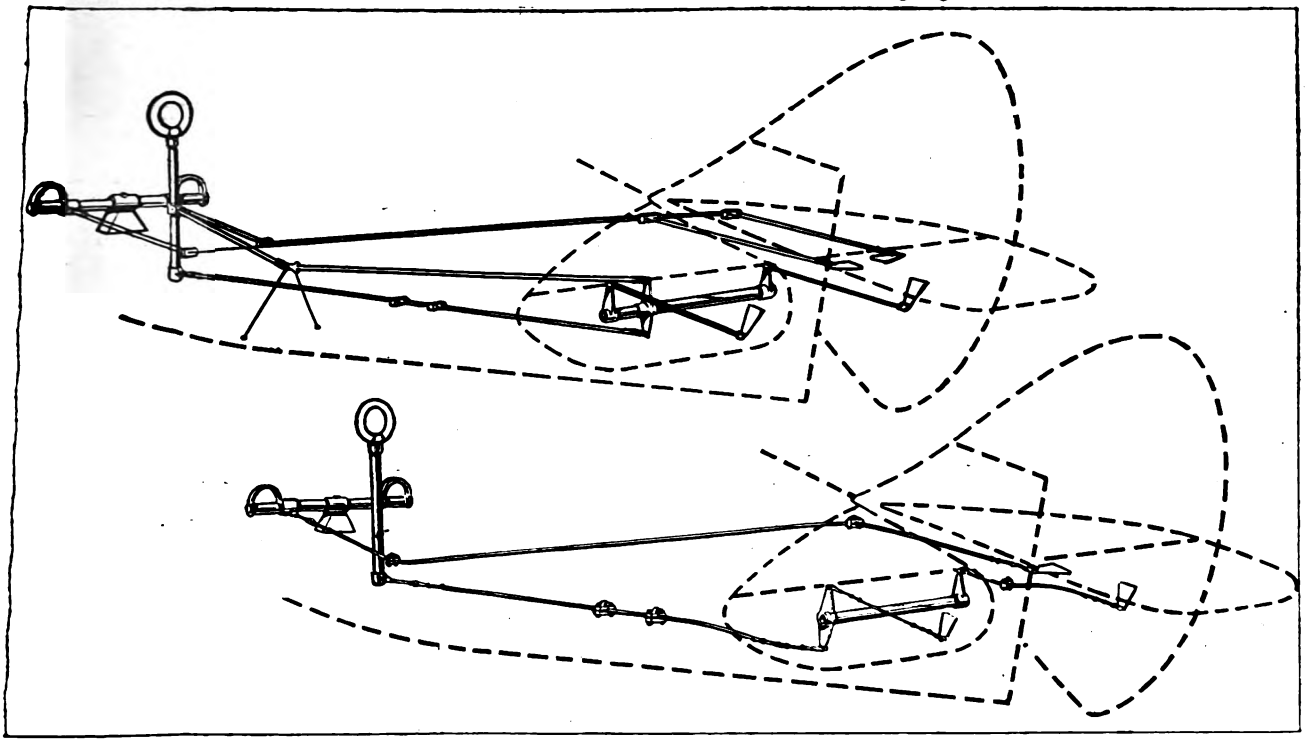
The idea underlying the Arens system is simplicity itself. A flexible member, which is both inextensible and incompressible, is guided round corners by a curved rigid tube, which also keeps it from bending when straight.

The idea is made practicable by having the two screwed rods which form the ends joined by a flexible cable round which a coil of spring-wire is tightly wound. Actually this member is assembled under compression so there is no play. The flexible cable which is soldered inside the two end-rods holds them tightly against the spring of the coil,—which is in itself incompressible.

Both the end-rods are screwed (with B.S.F. threads for aircraft), but one of these ends, the driving end, is extended to act as a guide. Thus, if we suppose the movement of the rod to be 5 in., the rod will be just over 5 in. long, so that it will never slide beyond the outer casing. This outer casing is made of duralumin when the unit is required for aircraft.

The Arens units can be supplied in any length, and there appears to be no practical limit to the number of twists and turns that a unit can make. The only necessary condition is that the bends must be of a suitable radius,—not less than 1½ inches on the smaller sizes and four inches in the larger. The whole unit is assembled in grease and works practically without friction. Nevertheless provision is made for lubrication.

Some illuminating figures have been obtained both in



TAIL CONTROLS.—Two diagramatic sketches showing, above, the normal aeroplane tail-unit cable controls, and below, the same tail unit with Arens rigid control.

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America and this country from tests made by properly authenticated bodies.

In the United States a test was made by the War Department, Engineering Division, of the Air Service. This test was made at 128 cycles (that is movements in and out, or to and fro) per minute, with a length of stroke of 4.5 in. and a constant friction load of approximately 12 lbs. After 343 hours working and a total number of 2,634,340 strokes, at the end of the tube there was .015 in. wear in the diameter and .005 in. in the length. The test piece was only lubricated for the first twenty hours.

The Royal Aircraft Establishment also made extensive tests against a frictional resistance of from ±5 to ±6 lbs., with engine oil as lubricant. After 500,000 cycles the maximum wear on the diameter of the coil was .01, after 1,000,000 cycles it was .110 in., and after a further 36,000 cycles there was another .015 in. of wear. During the last portion of the test mixed quartz-sand was sprinkled on the unit.

The report states that after 1,000,000 cycles neither unit (two were under test) showed undue signs of wear; no strands of the tension cables had broken although the surface of several individual wires was worn. The report then says that sprinkling the duralumin unit with sand accelerated the wear but the unit was quite serviceable when the test was discontinued after 36,000 cycles. Several wires of the tension cable had broken but there had been no tendency for the ends to jam.

The outer duralumin casing was then cut longitudinally and examined. There was marked wear at the bend but the metal had not been dangerously thinned.

These tests give a very satisfactory impression of the Arens Unit, which will naturally appeal to designers as saving an enormous amount of detail work in the Drawing Office. There is no need to spend time designing levers and mountings for them, nor complicated lay-outs, one merely fixes the units wherever is most convenient.

In this connection, the weight of standard right-angle bends with duralumin outer casing may prove interesting. The sizes are all taken over the diameter of the inner flexible member. The ¼ in. size has an overall length of 14 in. and weighs 4 1-16 ozs. The 5-16 in. size is 19 in. long and weighs 7 ozs. 25 grs. The 3-8 in. size is 31 in. long and weighs 16½ ozs., and the ½ in. size is 40 in. long and weighs 2 lbs. 5 ozs. The additional weight per foot of these sizes is 2¾ ozs. 50 grs., 4 ozs. 45 grs., 6 ozs. 50 grs., and 9¾ ozs. 50 grs. respectively.

Another great feature of this system is that the controls are all placed out of the way and completely guarded so that the possibility of anything getting entangled in them is negligible.

These Arens Units can be coupled up for straight runs to push-and-pull rods or tubes. The screwed ends of the rods make this easy.

For engines Arens controls are particularly suitable as they can be persuaded through fireproof bulkheads through a tightly fitting hole as opposed to a slot with slides as is sometimes necessary for the normal type of control.

The unit is also of value for wheel-brake installations as a means of connection between the brakes and the rudder-bar or other operating mechanism.

In Germany the system is already being used by the well-known firms, Junkers, Heinkel, Dornier, Maybach, and Bayerische Flugzeugwerke.

SPARTAN PUBLICITY.

Spartan products have achieved a reputation for themselves and especially the latest member of the Spartan family, the Arrow, which in spite of bad luck did so well in the European Tour. This reputation is likely to be spread farther afield by the issue of an excellent folder by the Spartan Aircraft Company Ltd. This folder is rather novel in that it is made up like an ordinary booklet of attractive design, but on being opened discloses pockets. These contain the latest information about the products of the firm.

The potential buyer can find the descriptive matter about each machine, their performances and prices,—all matters of the gravest import.

In the Arrow the makers have combined the distinctive features of the Spartan design, robustness and stability, with the flying performance that present-day owners demand. As with the other Spartan types the Arrow has a large door to each cockpit and an ample luggage locker, features which appeal to the owner who wishes to tour about at week-ends.

The Arrow retains the Spartan feature of interchangeability. The wings on either side are interchangeable with those of the same side. The four ailerons are interchangeable, as are the elevators. The halves of the undercarriage can be interchanged too. A spare wire can be carried to replace either a landing or flying wire.

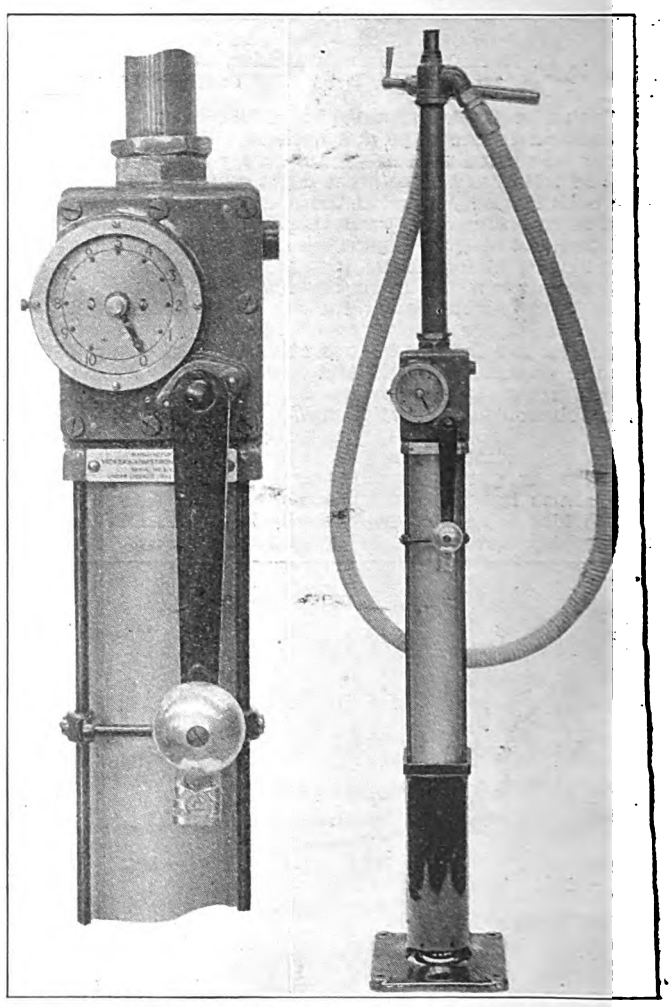
COMMERCIAL TRAVELLING BY AEROPLANE.

After eighteen months' experience of the use of aeroplanes for commercial purposes, the Anglo-American Oil Company has ordered a third and faster machine, a Sports Avian (Hermes). The new machine will have a cruising speed of 107 miles an hour and a top speed of 124.

An official of the firm states that two machines are regularly in commission for helping the aviation sales staff to get about the country, and besides being used for what might be called commercial travelling, they have proved invaluable also for testing the firm's own fuels and oils. Very careful records are kept and each aeroplane is in effect a mobile research laboratory.

SELLING AEROPLANES OVER THE COUNTER.

We all remember the old, very old, story about the big store where one could get anything from a packet of pins to a performing elephant or team of trained fleas, but the inventor of this somewhat libellous yarn never dared to suggest that aeroplanes would be sold over the counter in such an establishment. Well, the time has come when they are, and Selfridges have sold a number of aircraft.



FOR THE PRIVATE OWNER.—The BP Fraser one-gallon pump as sold by Selfridges. The discharge register shows individual deliveries and a totaliser (not visible) reads up to 99,999 gallons.

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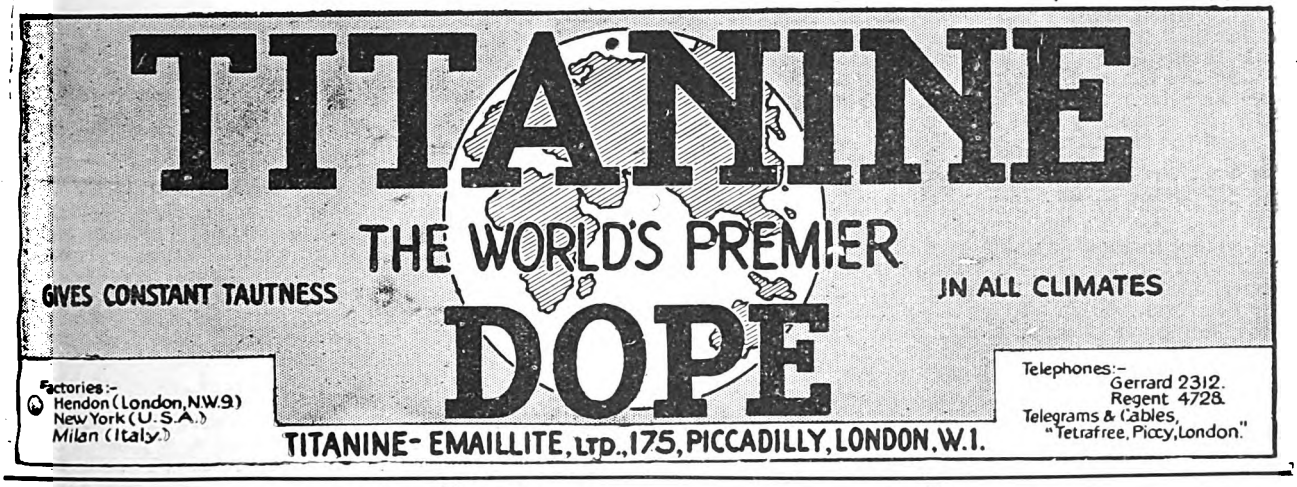

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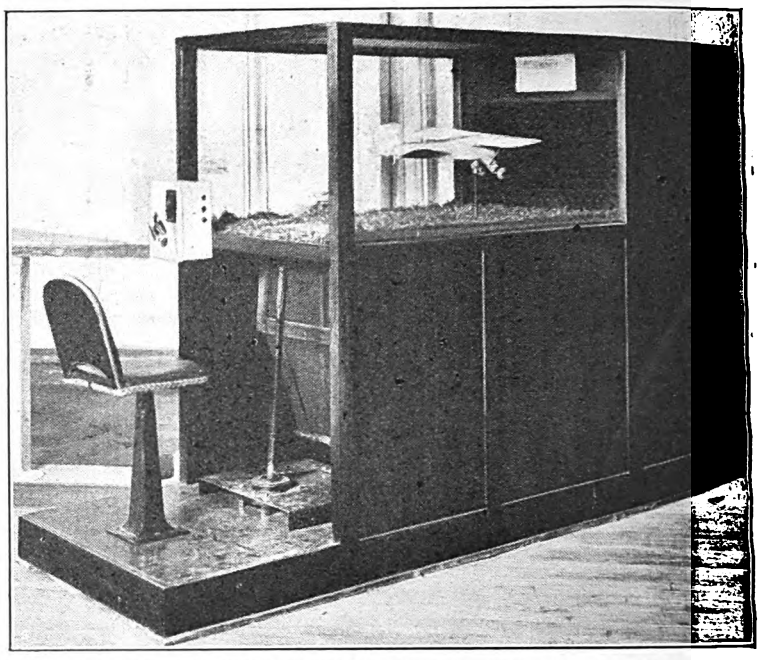
Selfridges have put the man in the street in touch with Aviation and that means that the man in the street will come to think of Aviation as a standard means of transport. The firm already accept it as such and have announced that from now on any member of their staff who has to visit Paris on business will travel by Imperial Airways unless the individual likes more antiquated forms of transport.

Selfridges have their Aviation Information Bureau in the corner of the man's shop on the ground floor and here all the appurtenances and accessories of aircraft are to be found. There are showcases of instruments and the like.

A good scheme for the initiation of the layman is the Curtiss Wind Tunnel, the European rights for which have been acquired for some time to come by Shell-Mex Ltd. One of these tunnels is to be seen at the Bureau.

The apparatus is intended to demonstrate the way in which the controls of an aeroplane work. The "pilot" sits on a stool at one end of a glass cabinet, which is a miniature of a wind tunnel of the scientific kind. He has a normal control-column and rudder-bar in front of him. When the throttle is opened a motor and fan are started up which projects a blast of air through the tunnel onto the face of the man at the controls. In the air stream is a model aeroplane with normal control surfaces which are worked by the pilot in the normal way, and the machine can be made to climb or dive or turn or bank.



TO BE SEEN AT SELFRIDGES.—The Shell-Mex Curtiss Wind Tunnel for demonstrating how flying controls work.

The idea is that people can thus be made to realise to some extent the feeling of the controls and the conditions in the cockpit. The limitations are naturally those of any wind tunnel in that direction of the air stream cannot be moved with the machine when the latter is put into a turn.

Nevertheless, Shell-Mex Ltd. deserve to be commended for their enterprise, which will certainly give many thousands of people a much better idea of how an aeroplane is flown.

Another good thing to be seen at Selfridges is a gadget for the private owner. This is the B.P. "Fraser" One Gallon Petrol Pump which is sold complete with a 500-gallon storage tank.

This pump appeals to a private owner on the counts of saving money, time, labour and space. One saves money because petrol can be bought in bulk, one saves time because refuelling can be done so quickly with the pump, one saves labour because the pump is light to work and the 8-feet length of hose obviates the need to clamber up and down with tins. The pump takes little space as the overall height is under six feet.

The Bureau make a point of having available the fullest information about every aeronautical subject. For instance they have catalogues of every British aircraft and details of every aeroplane and gliding club in the country.

Talking of gliding Selfridges are very fortunately placed. Not only are they in a position to supply every British-built glider but they have all the necessary arrangements for the importation of German makes.

A feature that makes their selling of light aircraft so interesting to the potential private owner is that Selfridges offer extremely attractive hire-purchase terms. Further the department is able to be of the greatest service as it is anxious solely to sell the client what he wants.

BRITISH EXHIBITS IN BUENOS AIRES.

Evidently there is some hope for the British manufacturer. The authorities of the British Empire Trade Exhibition, Buenos Aires, 1931, of which H.R.H. the Prince of Wales is the Patron, intimate that so great has been the desire of British Manufacturers to exhibit there that the organisers have had to provide more than double the amount of covered space originally designed, and although the grounds and buildings cover more than 25 acres, there will be difficulty in fitting in all who wish to participate.

That looks as if some British manufacturers appreciate the business which is waiting to be done in South America. There will be great interest in seeing what kind of a show the British Aircraft Industry ultimately makes.

SOUTHAMPTONS IN THE ARGENTINE.

The first machine of the batch of eight Supermarine Southampton flying-boats (two 450 h.p. Lorraine engines) supplied to the Argentine Government has been erected at Puerto Belgrano and the initial flights have proved to be highly satisfactory to all concerned. According to an extract from the report on the tests of this first machine "the Chief and Officers of the Air Station had no words to express their satisfaction for the workmanship displayed in the Southampton, the easy way of handling her and her performance in the air."

The whole of the personnel of the Naval Base turned out to see the demonstration of this, the first modern British twin-engined all-metal flying boat to be seen in the Argentine.

The erection of the remaining machines is proceeding rapidly under the supervision of one of the Supermarine expert erectors and this operation is affording an opportunity to the Argentine Naval aviation personnel of becoming familiar with the construction of the famous Southampton flying-boat.

THE PUSS-MOTH IN CANADA.

The following cable from Mr. R. A. Loader, the manager of De Havilland Aircraft of Canada Ltd., is of interest:—

C.386, Geoff O'Brian, yesterday completed outward half of trans-Canada demonstration tour with Puss-Moth on arriving Vancouver (stop) Demonstrations have been given at Winnipeg Regina Moose Jaw Calgary and High River (stop) Actual travelling time for approximately 2,700 miles 27½ hours (stop) Last stage yesterday included 600 miles through Rockies mostly above snow-line at 12,000 feet (stop) On later stages of tour was accompanied by General MacBrien on standard Gipsy-Moth who is flying from Ottawa to Victoria (stop) Both pilots report Gipsy One and Three ran faultlessly with only routine maintenance no replacements and not a moment's anxiety (stop) George Mickleborough passenger in Puss-Moth wires "We both believe no one will ever see Canada until he has flown to the coast on a Puss-Moth."

From Germany, Mr. Broad reports by cable that no trouble of any sort was experienced by any of the Gipsy engine users throughout the 4,700 miles' circuit of Europe.

SAFETY FIRST.

From *The Times*, Aug. 11:—

For over a year the Sheffield Flying Club has existed with 150 members but without an aeroplane. On Saturday, however, a new Blackburn Bluebird machine arrived at the Coal Aston Aerodrome Sheffield, for its use. The aeroplane has been given by Mr. George Kenning, of Sheffield, who has also offered to pay all repairs and maintenance of the machine until the end of the summer season.

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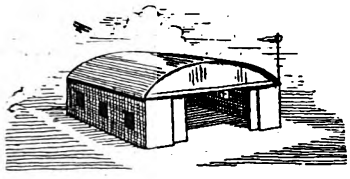

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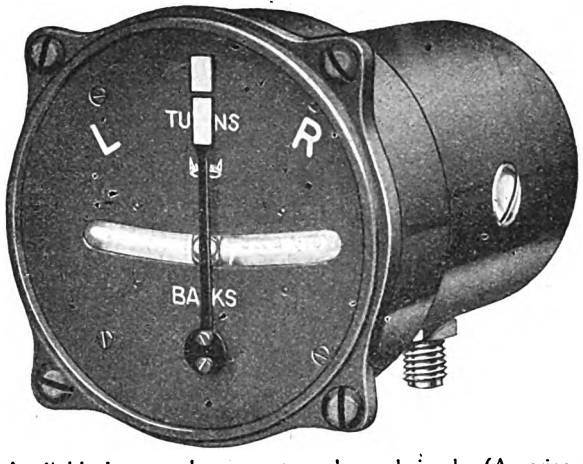

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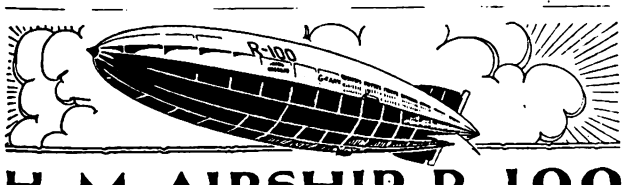

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MANY INVENTIONS.

Such painfully acquired elocutionary culture as the art of pronouncing the name Wurplewhatnottingham (Wham) does not seem greatly to assist such broadcasters as that purely fictitious character Dolt Miracle, Esq., B.B.C. when it comes to talking to some millions of people about aviation, on an important occasion.

Probably Spry Junior would consent, if suitably approached, to give evening classes on the elements of this flying business to broadcasters, and possibly a limited number of journalists might like to join. Spry Junior is ten, and spends a lot of time at the Aerodrome, and like every other schoolboy of to-day, really knows quite a lot about aviation, and certainly much more than many of those who talk and write about it, not excluding, perhaps his aged parent, as he (Spry Junior) does not scruple to point out at times.

It is curious that those who pronounce aviation as though its first syllable rhymed with the "have" in "have another, no?" (H silent in both cases except in the Saloon bar, where it is optional) should not have spotted that Mr. "Jimmy" Youell put up a remarkably fine show in struggling across Europe in every sort of bad weather and in the teeth of a gale as well, and should not have realised that with all eyes on Commercial Aviation, they could have made excellent speeches pointing out that on the day of Miss Johnson's arrival, Channel shipping was in confusion and many boats were putting into port for shelter, yet Imperial Airways and everyone else was running as usual, and that it is better to arrive a bit late by air than spend the night cowering behind a breakwater in a blooming ship.

Another way in which aviation beats shipping, railways and so forth, was illustrated the other day, when K.L.M. had a patient with a very seriously injured spine, who could not stand boat and train travel, to take by air in a special machine to Flensburg on the German-Danish frontier, a distance of just over 560 miles. K.L.M. has considerable experience of air ambulance work, because quite a lot of this is done when the Dutch Islands get cut off from the mainland by ice in Winter, and urgent cases can only reach the mainland by air. Special stretchers, etc., have been evolved for the purpose and K.L.M. pilots have studied this business very carefully.

In this instance, flying at a height where there were fewest bumps the three-engined Fokker did the distance in four hours twenty-five minutes, with a tail wind, and without intermediate landings. Both taking off and landing the stretcher was held off the floor by attendants, and the journey was most satisfactorily accomplished.

During his flight from Vienna Mr. Youell suddenly observed the *Graf Zeppelin* bob stealthily out of a self-coloured cloud a few miles in front of him, right across his bows. When there are many of these monsters about (if ever) it will be necessary to paint them some other colour than the dirty silver grey they mostly are at present.

If ever, by giving the Triumph 7 in part exchange, we can afford an airship, we shall get Mr. Charles Dickson to paint it with red and gold scales and a cheerful grin on its face like an amiable goldfish, then people will see us coming, even when we neglect to blow our horn.

Regular readers (if any) of "Many Inventions" will remember the loud speaker the Air Ministry placed (for no fathomable reason) in the Main Hall at this Aerodrome some months ago, and it has never said a word to speak of since. All through the day of Amy Johnson's arrival it "never said nowt about owt," but sat and listened to the hundreds of other loud speakers braying the praises of *The Daily Mail* about the place. It was exactly like some morose and moribund parrot on its perch high up near the ceiling. The following morning, after sleeping on the matter, it shook the dust of months from its diaphragm, and hoarsely ejaculated "One, two, three, four, five-six-seven, eight, nine-ten," after which it subsided into the silence of senile decay once more. There is a theory that the Elocution Department, Air Ministry, has not done its duty by the loud speaker, which has obviously never been taught to talk. Let us pray it never will be.

Mr. Stannage, wireless operator of the *Southern Cross*, came through by K.L.M. from Holland recently, where he has apparently been having no end of a good time. Shortly after landing at Croydon he was wafted away by Mr. Stewart David in a Puss-Moth named the *Leicestershire Fox*, the property of Mr. W. Lindsay Everard, to Leicester, where a right royal welcome awaited him. Mr. Stannage is a native of Leicester or thereabouts.

It is understood that Major Andrew Holt has sold his tri-motor Fokker to Ad Astra, the Swiss company, and bought the Saro Cloud, as being more suitable to the work he will be doing in Canada.

Mrs. Henderson is to be congratulated on her pluck in taking on the management of the late Lieut.-Col. Henderson's business at Croydon Aerodrome, with Mr. Charles Allen as chief pilot. Everyone will wish her all the success possible in her gallant undertaking.—SPRY.

PERSONAL NOTICES.

BIRTHS.

ALLIOTT.—On July 20, at a nursing home, Hounslow, to Betty (*née* Huggett), wife of Flg. Off. E. H. Alliott, R.A.F.R.—a daughter.

TYRRELL.—On July 30, at San Remo Nursing Home, Belfast, to Barbara, wife of Flt. Lt. G. Y. Tyrrell, R.A.F.—a daughter.

FORTHCOMING MARRIAGE.

CALWELL—MEGLAUGHLIN.—The engagement is announced between Alexander K. K. Calwell, R.A.F., son of the late Capt. and Mrs. A. McD. Calwell, and Constance E. (Betty), daughter of Master and of the late Mrs. Barry Meglaughlin, Belfast.

MARRIAGES.

ALLAN—CAMPBELL.—On Aug. 7, at Bournemouth, John Crawford Allan, R.A.F., of Croydon, only son of the late M. Sinclair Allan and of Mrs. Allan, to Margery R. Campbell, younger daughter of Mr. J. Douglas Campbell, of "Broich," Crieff, and of the late Mrs. Campbell.

APPLETON—HARDING.—The marriage arranged between Mr. Charles Henry Appleton, R.A.F., and Miss Yvonne Marjorie Harding took place at Lyndhurst, Hampshire, on Aug. 12.

CHARTERIS—GROSVENOR.—On Aug. 9, at The Oratory, South Kensington, very quietly, the Hon. Evan Charteris, K.C., to Lady Edward Grosvenor.

HAYWARD—GRAINGER-BRUNT.—The marriage took place on Aug. 11, at St. Peter's, Cranley Gardens, of Tom Christopher Hayward, County Hall, Oxford, only son of Mr. and Mrs. P. C. G. Hayward, of Longueville, Needham Market, Suffolk, and Sybil Lisette Grainger-Brunt, only child of Capt. W. F. Grainger-Brunt, late R.A.F., and Mrs. Grainger-Brunt, of 5, Rosary Gardens, S.W.7.

LOLY—DORMAN.—On Aug. 1, at Heathfield, Frank Masterman Loly, D.F.C., second son of the late Gustave Loly, Headmaster of Quormore, Bromley, Kent, and Mrs. Loly, of Horley, to Doris, youngest daughter of the late John Dorman and Mrs. Dorman.

DEATHS.

MILLAR.—On Aug. 3, at Turnhouse, Edinburgh, as the result of a flying accident, Alexander R. H. Millar, Flt. Lt., Auxiliary Air Force.

SAWYER.—On Aug. 6, near Grantham, as the result of a flying accident, Wilfred Sawyer, Plt. Off., R.A.F.

Mr. Sawyer entered the R.A.F. as an Aircraft Apprentice in 1924 and passed out at Halton with a Cadetship. At Cranwell he played Rugby Football for the College. He was posted in December 1929 to No. 41 (Fighter) Squadron.

ACKNOWLEDGMENTS.

Mrs. A. J. Dawes wishes to return her sincere thanks for the numerous letters of condolence she has received in her late bereavement.

Mrs. Edward Piercy Henderson wishes to express her deep sense of gratitude to all those at the Croydon Aerodrome, and to the representatives of the Air Lines, who showed such kindness to her family on the death of her late son George Lockhart Piercy Henderson.

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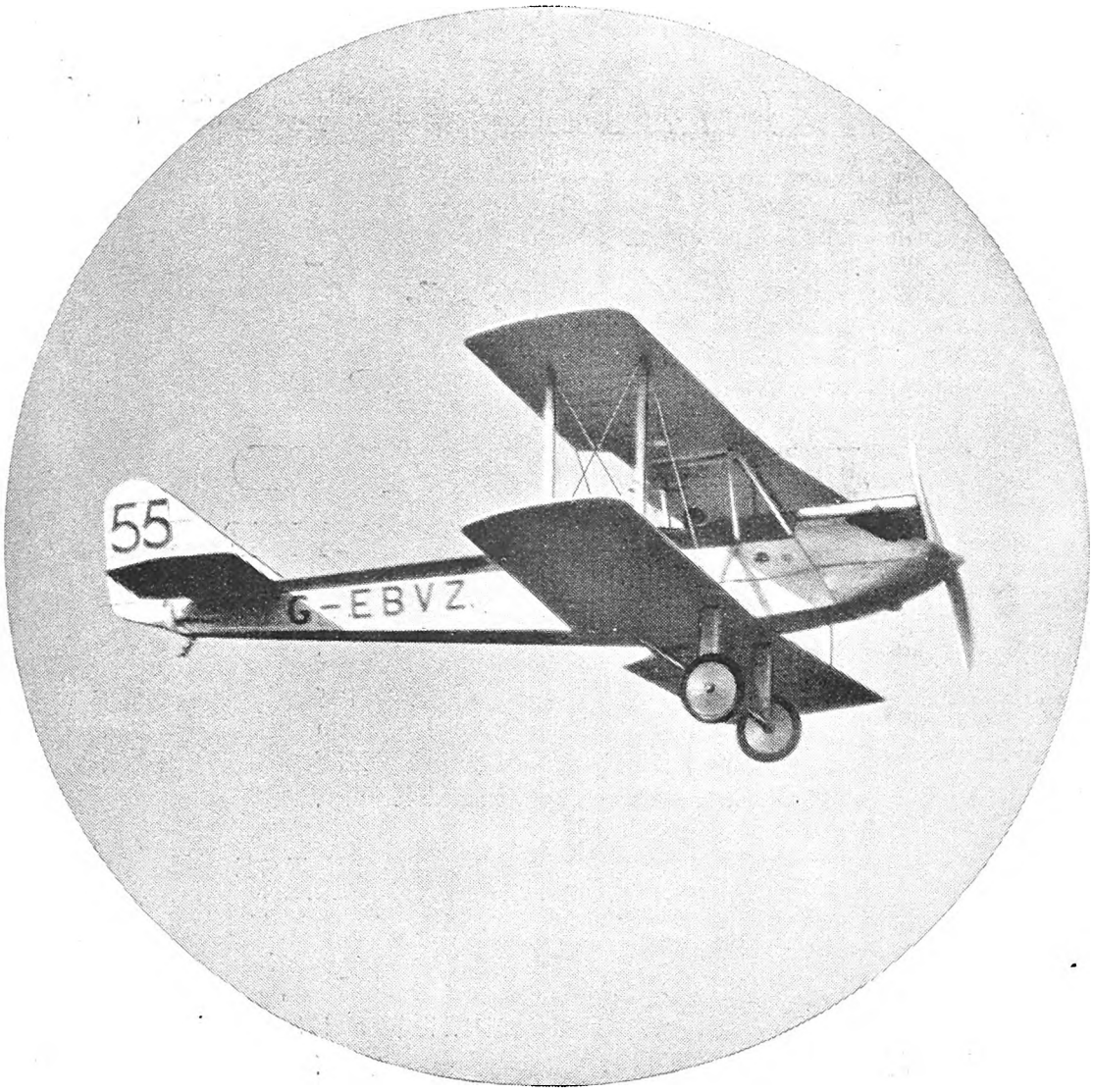

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INCORPORATING AERONAUTICAL ENGINEERING

Edited by
C.G.Grey

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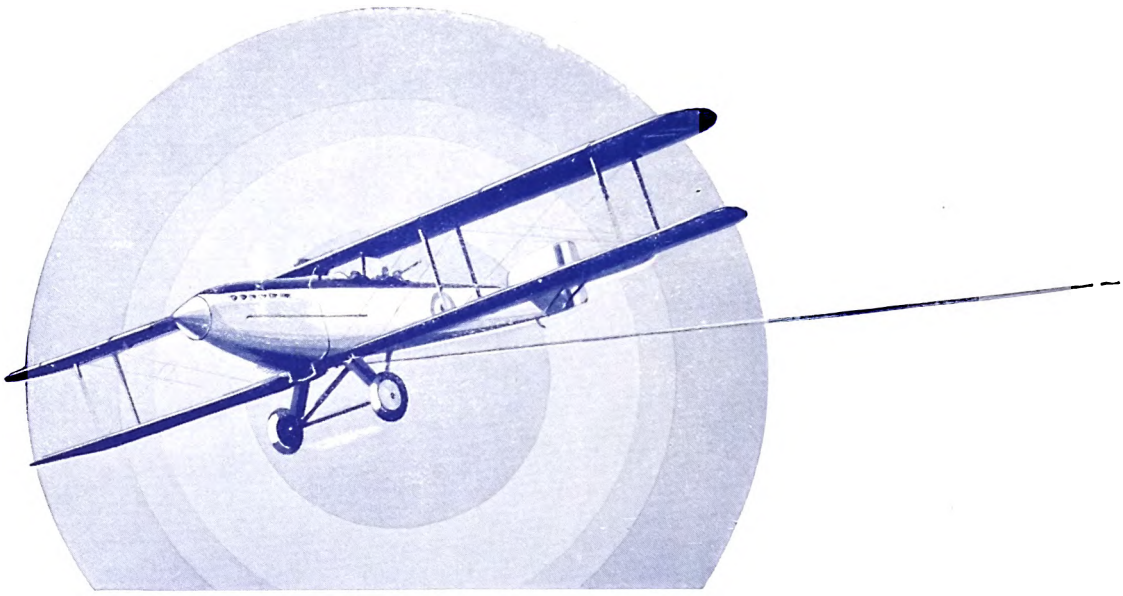

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AUG. 20, 1930.

THE AEROPLANE

Incorporating

Aeronautical Engineering

VOL. XXXIX No. 8.

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ON THE AIR EXERCISES.

Let us hope that those in High Places have learned much from the Air Exercises which came to a sudden end at 03.30 on Friday morning,—an unpleasant hour at which to end a war. Certainly those in low places, the pilots and aircraftmen, "the toads beneath the harrow," so to speak, learned a good deal, but still more were they confirmed in what they already knew,—those things which take such a long time to rise to the surface through devious Service channels before they attract the attention of those civilian technical experts at the Air Ministry on whose self-asserted wisdom the supply of newer and better aeroplanes and engines for the Air Force in the end depends.

Perhaps the thing which strikes the un-expert civilian spectator most about these exercises is the casual way in which pilots, and their passengers if any, will push off in any sort of weather at any time of day or night to attack an objective which may be covered by fog or low cloud and thus entail diving blind to get at it, or, on the other hand, will go up into heavy cloud at the warning of an enemy raid with the object of intercepting the raiders and with a fair sporting chance of bumping into a big bomber in the process. Personally, being like Mr. Hurree Chunder Mookerjee, "a fearful man," this seems to be the grimmest part of the whole business.

Nevertheless it is not so grim as it used to be in the days before parachutes were adopted as standard and compulsory equipment. When one looks back to the War 1914-18, and remembers how one nearly got oneself locked up for acting in a manner calculated to lower the moral of the King's Armed Forces by agitating for parachutes, the acceptance of the parachute to-day as a standard fitting seems quite funny.

Members of the Caterpillar Club to-day will see the joke better when they realise that parachutes were not adopted during the war because we had not produced a type which could be guaranteed 100% efficient. Which would you rather have in a real fight, or even in a peace-time flight in the dark or in fog,—a parachute which would open twice out of three tries, or no parachute at all? The experts at the Air Board, and later at the Air Ministry (otherwise the Bolo House) insisted on 100% efficiency, and cost us hundreds of lives when we could have saved 66% of them.

The Way of the Expert.

That is the way of the experts. They keep on keeping on with their experiments till they are satisfied that the things with which they are experimenting are 100% right and then find that most of the time has been wasted, and progress has been correspondingly delayed, because they have forgotten or refused to learn something which ought to have been obvious if they had known anything of the practical side of their jobs and had not depended on experiments which went no further than the wind-tunnel or the test-bench or the metallurgical laboratory.

For example, take the trouble we are all up against at present with aeroplanes (service and civil, single-engined and multi-engined) being battered to pieces by big slow-running two-blade air-screws on geared engines.

The Air-Screw Trouble.

The experts tell us that big slow-running screws are more efficient than small high-speed screws.—Of course they are if you put your small screw in front of an engine nearly as big as itself, with a fuselage of the same size behind it. The unhappy small screw only has a foot or so of blade doing any real work. And the result is that we use between 400 h.p. and 500 h.p. to take one man into the air at a

"AND GENTLEMEN IN ENGLAND NOW A-BED SHALL THINK THEMSELVES ACCURSED THEY WERE NOT HERE."

(SHAKESPEARE—*Henry V.*)

THE NIGHT FIGHTER.—An Armstrong Whitworth Siskin of the Redland Air Force getting ready for a defensive patrol against Blueland night bombers. The Vickers ammunition-belt is being taken in-board.

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speed something less than that which is done by a civil aeroplane with 120 h.p. and three people on board.

To make things worse we load the machines up with external wireless gadgets, bomb-racks, and navigation lights, all stuck out where they will most impede progress. Only fortunately the machines are so slow and such a bad shape to begin with that a little extra impediment does not make them much worse.

After ten years or so of this the experts discovered the geared airscrew (*vide* Wilbur Wright's flying machine of 1906 or so), and this gives the blade a few more feet of clean air in which to work. And so we get a few more miles per hour.

But the experts have still to learn that nearly all the vibration and still more of the noise in an aeroplane is caused by the slip-stream from the airscrew battering the structure behind it, and that steady battering will shake the best all-metal machine to pieces,—perhaps even sooner than a wooden machine. Judging by past experience the experts will discover this elementary fact somewhere about 1933.

A Glimpse of the Future.

Consequently, somewhere about the time of the Air Exercises of 1938 (which may be after the real war with the Red Air Force) we shall probably find our intercepter fighters with pusher-screws, looking remarkably like the early war-time D.H.2 or the F.E.8, or still more like the Pemberton-Billing "Push-prodge," which probably most of the present generation of the R.A.F. have never seen or heard of. Only, instead of whirling Catherine-wheels or stationary star-fish behind them they will have neat little engines tucked into their sterns.

Something might be done with the Halford H-type engine laid flat on its side. Or why not seven or nine four-cylinder blocks arranged radially? Thirty-six cylinders sound a lot, but if one big nine-cylinder radial runs perfectly on a single-throw crankshaft, as it does, why should not four small ones run still better on a four-throw shaft? The overall diameter would be about two feet and it would give about 700 h.p., either with heavy oil or petrol.

Somewhat similarly the bigger aeroplanes, heavy bombers, troop-carriers and so forth will have neat little engines tucked into their wings, instead of having vast power-plants carried on derricks just where they do most to impede progress. And instead of jaunting along gently at 40 or 50 m.p.h. over the ground whenever they meet a bit of a breeze, they will put up something like 200 m.p.h. ground-speed against any wind they are likely to meet.

A Good Show.

That slowness of the big bombers is in itself one of the lessons of these Air Exercises. One of the best shows of the lot was the Blue raid on Catterick by the heavy night-bombers, which went all the way from Salisbury Plain round by Sealand, over the Pennines in thick cloud, and came in on Catterick from the West, and got away with an absolute surprise,—and took about 10 hours in the air to do it, poor devils.

They say in the R.A.F. that it was an airmen's raid entirely. The non-commissioned pilots were allowed to work out their own courses and do their own navigating. Presumably commissioned officers commanded the machines and a senior officer commanded the fleet, but the story is that the N.C.O.'s did the job without having to ask for help, and did it faultlessly. It was the test of the N.C.O. pilot-navigator, and he proved himself to be thoroughly adequate.

If the story is not true it ought to be. And if true it should be told officially to the credit of the "other ranks."

Simple Possibilities.

As a test it was worth while. But such a test does not justify the existence of such slow machines. The Vickers Vellore went round the King's Cup course at something well over 125 m.p.h., and she is classed as an ordinary freighter. So obviously Vickers Aviation Ltd. can build high-speed bombers just as easily as slow ones.

The Hawker Hornet and the Fairey Firefly both do well over 220 m.p.h., and the Hawker Hart, a two-seater, is not much slower. So what is the excuse for having any single seater in the R.A.F. which does less than 230 m.p.h. or any two-seater which does less than 220 m.p.h.? And why should a bomber be any slower, given the same load for each horse-power used,—or, to put it in technical jargon, given the same horse-power loading?

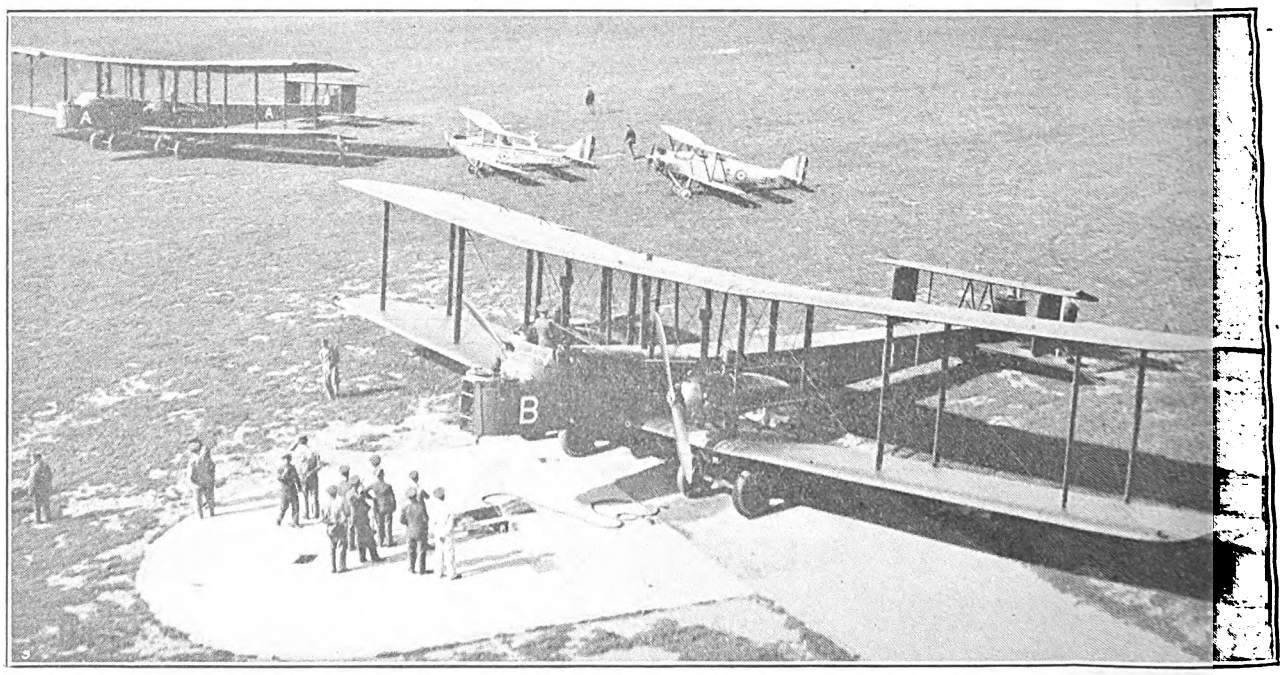
What matters in air war is range. You can either cover a long distance slowly in a long time or you cover it fast in a short time. And the shorter the time the less chance there is of being shot down or of running into worse weather. There is no possible argument in favour of stopping in the air a long time when a short time will do just as well, or much better.

Still less is there any sound argument in favour of putting five or six highly and expensively trained men in one machine with tons of bombs, all of whom and which can be destroyed at once by a lucky shot from an Archie-gun or a single-seat fighter, when the same men could carry between them a bigger load of bombs split up between five or six high-speed single-seaters,—with an escort of fighters. The only excuse for a bomber which will carry tons of bombs is the possibility that somebody may find a reason for droping one bomb weighing just that number of tons,—as for example to heave a battleship out of the water and break her back.

A Day Off.

Unfortunately, because of increasing pressure of work in this office one was unable to go out and follow the Exercises in person. But they are fully and adequately described hereafter by Mrs. C. M. McAlery,—as is very suitable in these days when a woman beats the best male pilots in the Tour of Europe in a year-old Gipsy-Moth, and a woman wins the King's Cup Air Race in a still older Avian, and a woman wins the King's Cup at Bisley, and a woman flies to Australia alone, in another old Moth,—all within a few weeks. Mrs. McAlery was an officer in the Women's Royal Air Force during the War in 1917 and '18 and knows the R.A.F. as well as its senior officers do. So she is fully competent to deal with the subject.

The best one could manage was to steal a day off to accept an invitation to visit 601 (Bomber) Squadron (Auxili-



AND SO AD INFINITUM.—Vickers Virginia night bombers (Lions), a Moth (Cirrus) and a Hawker Tom-Tit (Mongoose) at Andover during the War.

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Confidence!

"FIVE Southampton twin-engined *flying boats* flew over from Calshot and it was not overlooked that the long *overland journey to Hendon and back implied CONFIDENCE IN ENGINES.*"

Daily Telegraph
30th June, 1930

The engines fitted to these machines were the tried and proved

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The finest aero engine in the World

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ary Air Force in camp at Lympne on the last day of the war. And, with much regret, one had to miss the squadron's guest-night the evening after the war was over.

As regular readers will remember, 600 Squadron put up the best formation of any of the Day Bomber squadrons at the Dispay at Hendon. And 601 carry the same efficiency into their work in camp and in the Exercises. Such efficiency can only be got by intense keenness in all ranks. And if these squadrons are composed merely of amateur airmen they are at any rate amateurs in the true sense of the word, —they are lovers of their work. In all games the true amateur sometimes beats the best professional.

The men of all the Auxiliary Squadrons are wonderful. Their fortnight in camp is necessarily, for nearly all of them, their annual holiday. And they reckon to have a few hours every day in which to enjoy the local seaside resorts when flying is over for the day. But this year they have been engulfed in the vortex of war. Which means that the men have had to be on duty till after the raiders have come home and the machines have been stowed for the night,—which has been as late as 21.00 or 22.00 hours on several days of the war. And that has not left much time for holiday-making. All the same they have been as cheerful and keen as ever. And the fact that all the machines have done their raids without mishap shows how good their work has been.

Pride of Ownership.

The officers of 601 Squadron rather pride themselves on having more privately-owned machines in the squadron than has any other unit of the R.A.F. When one was there they had a Puss-Moth, two or three ordinary Moths, an Avro, a Widgeon, and a Spartan in the sheds. And there was some talk of making a civil raid in these machines after the war was over on a certain Red aerodrome which had given them cause of offence. One hopes that it has had a salutary, or at any rate a sanitary, effect.

There is a legend in the Army that a cavalry officer, when asked by an examiner to explain the functions of cavalry in war, replied "The functions of cavalry are to give tone to what would otherwise be a mere vulgar brawl."—Without going so far as that, one does believe that a certain added tone pertains to a squadron whose officers have their own private aircraft. Naturally almost every officer in the R.A.F., regular or auxiliary, would own his private aeroplane if he could afford it. But there are some who could and do not.

Anyhow, 601 Squadron includes several of the best-known amateur aviators in this country, as may be seen in the Air Force List. And none are keener than the commanding Officer, Sir Philip Sassoon, who already owns a Gipsy-Moth, and, as he has a fondness for speed, now wishes for a Hawker Hart as a private conveyance,—in which he shows his good judgment. Like many of our best and keenest pilots Sir Philip dislikes a closed machine, and as an open run-about the Hart will take a lot of beating. When he gets it the Squadron will be still prouder of itself.

English As She Is Writ.

To revert to the Air Exercises,—there is one phase of them in which further exercise is needed. That is in the composition of the Official Communiqués. Here a few English Exercises, such as we used to do at school, seem desirable.

Those who know the description of Official English which was given by the late Sir Walter Raleigh—the author of the first volume of the official history of The War in the Air—will find full justification for his famous dictum in the language perpetrated by the Narrative Staff at Uxbridge. Seldom has one read anything worse.

One suggests that they be given a course in Anglo-Saxon, and be forbidden to read anything later than Chaucer for three months. At any rate Chaucerian English should be made a compulsory study at Cranwell, so that when a former Cranwell Cadet becomes Chief of the Air Staff (which according to Lord Trenchard will mark the coming into its own of the R.A.F.) any Staff Officer of the R.A.F. who writes Mediterranean English instead of the Anglo-Saxon language, or who uses those idiotic phrases "executed" and "carried out," shall be duly executed and then carried out.

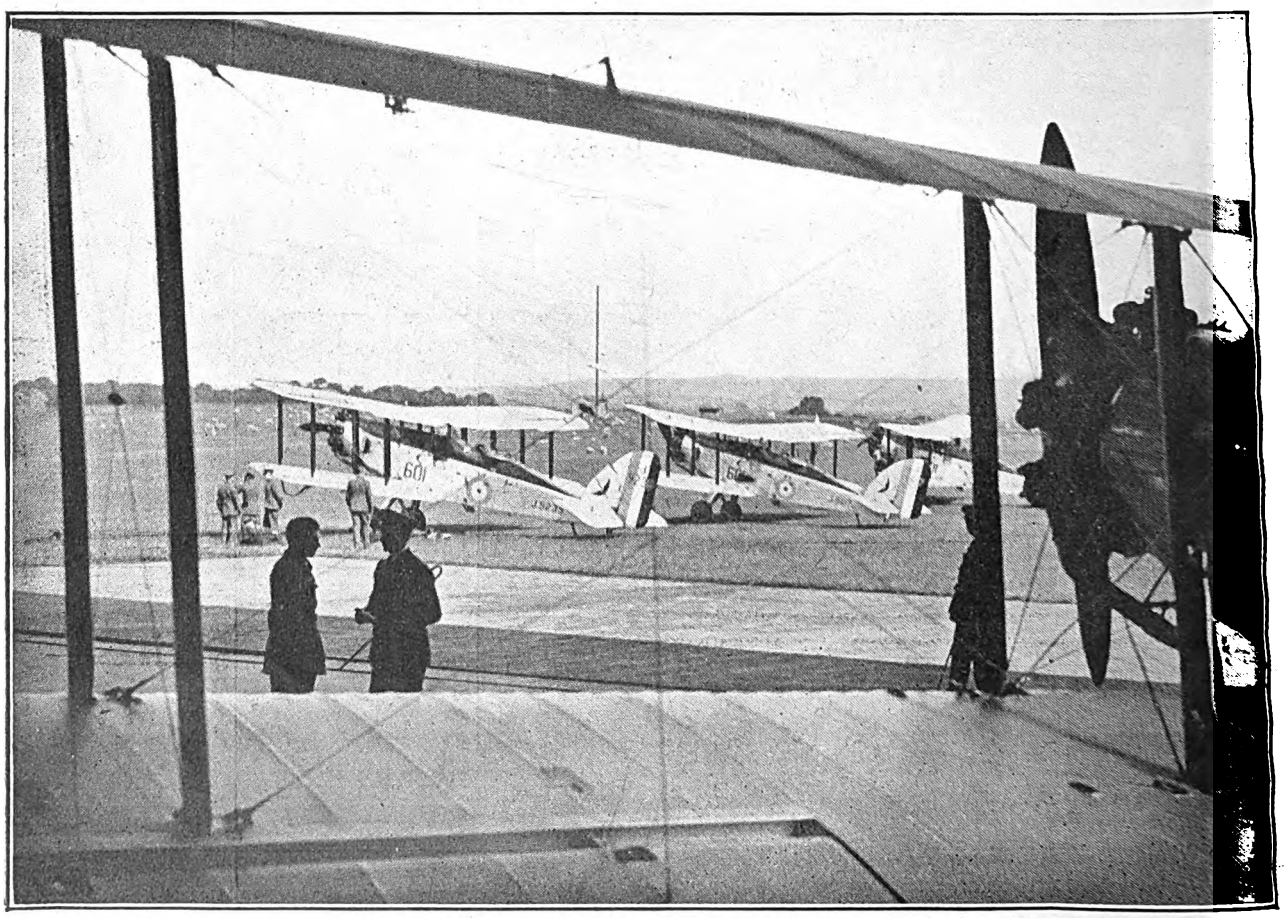
A few weeks ago one mentioned the fact that the only things that are carried out are corpses and drunks. Wounded men might have been included. But these Uxbridge communiqués are full of "carried out." The Red and Blue forces were continually "carrying out" raids. If only the Narrative Staff will think what the word "carry" and the word "out" mean they will see the silliness of the way they have been using them.

The Misuse of Words.

Another of their pet sins is the use of the word "since" when they mean "because." Many famous writers use the word in that sense, but that is no excuse. "Since" definitely implies a passing of time, and if wrongly used in a despatch in time of war it may cause a disaster.

Also they will write "anticipate" when they only mean "expect,"—another habit of modern journalism. The meanings are quite different.

Also they use the phrase "due to" when they mean "because of." This is a vile misuse which has recently become popular in America, and is spreading over here. It



THE WINGED SWORD.—No. 601 Squadron, whose crest is the winged sword, ready to start on a raid.

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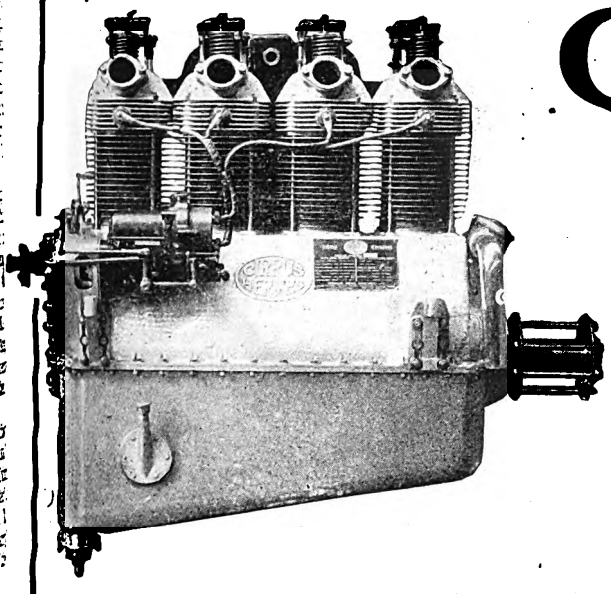
STERLING QUALITY of the HERMES ENGINE



Challenge International de Tourisme, 1930:

¶ **FULL MARKS for REGULARITY**

Mr. S. A. Thorn, piloting a HERMES "Avian," gained full marks for regularity throughout the 4,700 miles circuit of Europe and won the prize presented by the people of Paris to the pilot of the first machine to arrive at Orly. Third machine to arrive at Berlin on completion of the tour.

¶ **FULL MARKS for FUEL CONSUMPTION.**

Mr. S. A. Thorn—HERMES "Avian" and M. Bajan—HERMES R.D.W.4 gained full marks for petrol consumption with standard carburetter setting as used throughout the tour.

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also may be used ambiguously in a despatch and cause loss of life.

Apart from dangerous misuses of words the Narrative Staff uses words merely foolishly. For example, they write of a bomb raid being "productive." How can a bomb raid *produce* anything? It can only destroy. A cavalry raid could produce loot or prisoners, but a bomb raid cannot. It may *cause* damage, or panic, or disorganisation. But that is not production.

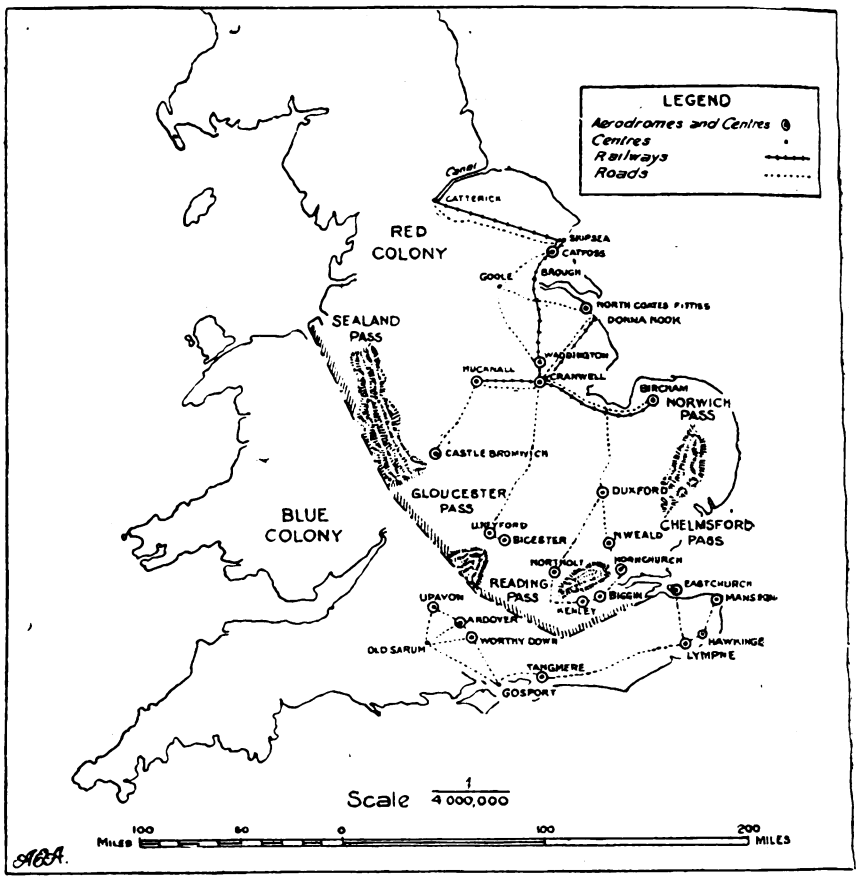
Furthermore, why write "commence" instead of "begin" or "start"? And why write "assist" instead of "help"? And why write "upon"? It is a word which is never needed, because it only means "on."

The Narrative Staff ought to know, if they aspire to doing genuine staff work in time of war, that the shorter the words they use the quicker they will be to write or telegraph or read and the less chance there will be of mistakes being made in them. Long words should never be used except to get a definite literary effect, and even then, in serious writing, short words are better. Long words are at their best when used humorously or ironically.

The bastard Latin and Greek used by scientists is only used to befog their victims and to give themselves an air of spurious superiority. It is an old trick of priestcraft. And the priests of science are the worst kind of mock-medicine-men.

Unfortunately the young fighting man, who in these days has to have something of a technical training, is taken in by this display of learning, and if he is not careful, catches the disease himself. Also he is apt to read newspapers; and journalists still hang onto the language of the half-educated penny-a-liners who went before them.

If these Air Exercises have done nothing else they have shown how communiqués ought not to be written. Therefore one hopes that when the next Exercises happen the stories will be told in plain and simple English.—C. G. G.



THE WAR AREA.—The Island of Incognito in which war has been raging.

DASTARDLY VIOLATION OF THE ARMISTICE.

The following is alleged by a correspondent to have been extracted from *The Redland Mail* of Aug. 15:—

An event of some significance is reported from Hornchurch Aerodrome, Red Colony. In utter violation of the armistice declared at 3.30 a.m. this morning the hangars and buildings were subjected to a dastardly bombing raid of a barbarous nature.

The officers of the station had barely closed their eyes after the midday repast when a formation of nine (9) aircraft was reported approaching from the S.E. It is said to have been composed of Moth fighters, Spartan day-bombers, Bluebird co-operation machines and Pussaloons, and to have been led by a Widgeon interceptor.

After a swift reconnaissance of their objectives the enemy broke up into flight formations and carried out an elaborate plan of low bombing attack. A feature of this was the use of a hitherto unknown form of missile consisting of a central core or tube round which was wrapped many coils of a white integument closely resembling the common bank-note. When released these bombs uncoiled themselves in mid-air, descending upon the targets with widespread and disastrous effect.

When eleven flight attacks had been made one of the raiders profited by the momentary disorganisation of the defence to descend, and with unspeakable audacity to deposit a vase or vessel, resembling a domestic utensil, in the centre of the aerodrome circle. This object, which is now in the hands of the Intelligence Department, has been found to be inscribed in letters of the appropriate colour with an ironical greeting from "the Blueland forces."

No explanation can yet be given of this outrageous attack. It is expected that the raiding aircraft were manned by ex-officers of the Blueland Air Force. Rumour has it that the gang was not entirely composed of junior ranks.

A sinister aspect of the affair is that although some 71,000 feet of the paper-like material have been recovered and forwarded to the Cipher Department at General Headquarters, so far no clue has been found as to the origin and method of its manufacture beyond the well-known water-mark which occurs on every sheet.

THE APPOINTMENT OF SIR JOHN HIGGINS.

The Armstrong Siddeley Development Co. Ltd. announce that Air Marshal Sir J. F. A. Higgins, K.C.B., K.B.E., D.S.O., A.F.C., has joined the Board of that Company and will assume the position of Chairman of Sir W. G. Armstrong Whitworth Aircraft Ltd. and of A. V. Roe and Co. Ltd. He will also join the Board of Armstrong Siddeley Motors Ltd.

Mr. J. D. Siddeley, C.B.E., retains the position of Chairman of the Armstrong Siddeley Development Co. Ltd. and of Armstrong Siddeley Motors Ltd.

This is one of the most important events that has happened in the history of British Aviation since the War 1914-18. In the past twelve years Mr. Siddeley has built up single-handed the most powerful group of firms in the Aircraft Industry, and though Mr. Siddeley is far from being an old man there comes a time when a great business becomes too big for any one man to handle. No more suitable person than Sir John Higgins to share the responsibility of such a task could be imagined.

He has done great work in the R.A.F. since he has been Air Member for Supply and Research, in the Air Council.—apart from all he has done for Service Aviation ever since he joined the R.A.F. in its earliest days. There is plenty of good work left for his able successors to do, and the best of us have to recognise the fact that there are as good fish in the sea as ever came out of it, but to him belongs the credit for initiating a speeding-up process in technical affairs by which the R.A.F. has benefitted greatly. And that same energy, and the ability to recognise a good thing when he sees it, will in the future be of equally high value to the Aircraft Industry as a whole as well as to the firms with which he is immediately associated.

Sir John Higgins is already so well known in the Aircraft Industry that he needs no introduction, and all that need be done is to congratulate him and Mr. Siddeley on their alliance and to wish them still greater successes in the future.—C. G. G.

AIR ESTIMATES SURPLUS.

In the House of Commons on July 22 the resolution was reported that by the Air Appropriation Account for the year ending March 1929 the aggregate expenditure on Air Services has not exceeded the aggregate sums appropriated for those Services and that the net surplus of the Exchequer Grants for Air Services over the net expenditure was £158,064 11s. 9d. Therefore the Lords Commissioners of His Majesty's Treasury have temporarily authorised the application of so much of the said total surpluses on certain Grants for Air Services as is necessary to make good the said total deficits on other Grants for Air Services.

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THE AIR EXERCISES.

By C. M. McAlery.

The 1930 Exercises of the Air Defence of Great Britain Command began at 11.00 hours on Aug. 12 and ended at 03.30 hours on Aug. 15. The scheme of the Exercises was described in The Aeroplane last week but, for the benefit of those who may have missed that issue, we may explain that England was divided into the two colonies of Redland and Blueland.

The frontier ran from Flint to Chatham through Shrewsbury, Worcester, Newbury and Horsham. Thickly populated areas were marked as mountain ranges and impassable to aircraft. The population of Red Colony was supposed to be centred at Cranwell, Hucknall and Bircham Newton, and its chief ports were Catterick, Skipsea and Donna Nook. The centre of population in Blue Colony was Old Sarum, and its port was Gosport. The normal communication in both Colonies was wireless telegraphy.

The object of the Exercises was to give the Staffs and the Bomber Squadrons experience in directing and executing bombing raids under conditions which would allow considerable latitude of action, and to give the Staffs and the Fighter Squadrons experience in conducting a strategic defence under conditions likely to exist in an overseas campaign. Special opportunities were given for initiative in action by subordinate commanders.

The entire operations were directed by Air Marshal Sir Edward Ellington, K.C.B., C.M.G., C.B.E., A.D.C., Air Officer Commanding-in-Chief, Air Defence of Great Britain, with Air Commodore the Hon. J. D. Boyle, C.B.E., D.S.O., Chief Air Staff Officer, A.D.G.B., as Assistant Director and Chief Staff Officer. The Directing Staff consisted of selected officers of H.Q., A.D.G.B., and attached officers. The operations were controlled from the A.D.G.B. Operations Room at Uxbridge.

Red Colony Defences.

The Air Defence Forces of Red Colony were commanded by Air Vice-Marshal H. C. T. Dowding, C.B., C.M.G. (A.O.C. Fighting Area), and consisted of the following units:—

No. 1 (Night Bomber) Wing: O. C. Group. Capt. C. E. H. Rathbone, D.S.O. No. 10 (B) Sqdn. (Handley Page Hyderabad, Napier Lions), O.C. Wing Cdr. A. T. Whitelock. No. 99 (B) Sqdn. (Handley Page Hinaidi, Bristol Jupiters), O.C. Wing Cdr. H. G. Smart, O.B.E., D.F.C., A.F.C.

No. 2 (Day Bomber) Wing:—O.C. Wing Cdr. E. R. Manning, D.S.O., M.C. No. 35 (B) Sqdn. (Fairey III F., Napier Lion), O.C. Sq. Ldr. B. E. Harrison, A.F.C. No. 100 (B) Sqdn. (Hawker Horsley, Rolls-Royce Condor), O.C. Sq. Ldr. W. B. Farrington, D.S.O. No. 207 (B) Sqdn. (Fairey III F., Napier Lion), O.C. Sq. Ldr. E. A. Beaulah.

No. 3 (Fighter) Wing:—O.C. Wing Cdr. R. Graham, D.S.O., D.S.C., D.F.C. No. 3 (F) Sqdn. (Bristol Bulldog, Jupiter), Sq. Ldr. E. D. Johnson, A.F.C. No. 17 (F) Sqdn. (Bristol Bulldog, Jupiter), O.C. Sq. Ldr. R. Harrison, D.F.C. No. 19 (F) Sqdn. (Armstrong Whitworth Siskin, Jaguar), O.C. Sq. Ldr. C. R. Keary.

No. 4 (Fighter) Wing:—O.C. Wing Cdr. J. S. T. Bradley O.B.E. No. 23 (F) Sqdn. (Gloster Gamecock, Jupiter), O.C. Sq. Ldr. H. W. Woollett, D.S.O., M.C. No. 32 (F) Sqdn. (Armstrong Whitworth Siskin, Jaguar), O.C. Sq. Ldr. B. E. Baker, D.S.O., M.C., A.F.C. No. 41 (F) Sqdn. (Armstrong Whitworth Siskin, Jaguar), O.C. Sq. Ldr. P. Huskinson, M.C.

No. 5 (Fighter) Wing:—O.C. Wing Cdr. F. L. Robinson, D.S.O., M.C., D.F.C. No. 29 (F) Sqdn. (Armstrong Whitworth Siskin, Jaguar), O.C. Sq. Ldr. E. J. D. Roun. No. 111 (F) Sqdn. (Armstrong Whitworth Siskin, Jaguar), O.C. Sq. Ldr. L. H. Slatter, O.B.E., D.S.C., D.F.C.

Red Colony also had an imaginary Aircraft Depot at Catfoss and emergency landing grounds at Catterick and Brough.

Red Colony aerodromes containing petrol, oil, bombs, and ammunition sufficient for one month were available at Catfoss, North Coates, Waddington, Hucknall, Cranwell, Castle Bromwich, Duxford, Bircham Newton, Upper Heyford, Bicester, Northolt, Kenley, Biggin Hill, Hornchurch, and North Weald.

Blue Colony Defences.

The Air Defence Forces of Blue Colony were commanded by Air Vice-Marshal Sir John Steel, K.B.E., C.B., C.M.G. (A.O.C. Wessex Bombing Area), and consisted of the following units:—

No. 51 (Night Bomber) Wing:—O.C. Group Capt. C. H. K. Edmonds, D.S.O., O.B.E. No. 9 (B) Sqdn. (Vickers Virginia, Napier Lions), O.C. Wing Cdr. W. V. Strugnell, M.C. No. 7 (B) Sqdn. (Vickers Virginia, Napier Lions), O.C. Wing Cdr. C. W. H. Pulford, O.B.E., A.F.C. No. 58 (B) Sqdn. (Vickers Virginia, Napier Lions), O.C. Wing Cdr. E. W. Norton, D.S.C.

No. 52 (Day Bomber) Wing:—O.C. Wing Cdr. W. B. Hargrave, O.B.E. No. 12 (B) Sqdn. (Fairey Fox, Rolls-Royce F.XI and Curtiss D. 12), O.C. Sq. Ldr. F. H. M. Maynard, A.F.C. No. 33 (B) Sqdn. (Hawker Hart, Rolls-Royce F.XI), O.C. Sq. Ldr. J. J. Breen. No. 101 (B) Sqdn. (Boulton and Paul Sidestrand, Jupiters), O.C. Sq. Ldr. F. H. Coleman.

No. 53 (Day Bomber) Wing:—O.C. Wing Cdr. F. P. Don. No. 600 (B) Sqdn. (Westland Wapiti, Jupiter), O.C. Sq. Ldr. the Rt. Hon. F. E. Guest, C.B.E., D.S.O. No. 601 (B) Sqdn. (Westland Wapiti, Jupiter), O.C. Sq. Ldr. the Rt. Hon. Sir P. Sassoon, G.B.E., C.M.G., M.P. No. 605 (B) Sqdn. (Westland Wapiti, Jupiter), O.C. Sq. Ldr. J. A. C. Wright.

No. 54 (Fighter) Wing:—O.C. Wing Cdr. J. B. Graham, M.C., A.F.C. No. 1 (F) Sqdn. (Armstrong Siddeley Siskin, Jaguar), O.C. Sq. Ldr. E. O. Grenfell, M.C., D.F.C., A.F.C. No. 43 (F) Sqdn. (Armstrong Whitworth Siskin, Jaguar), O.C. Sq. Ldr. C. N. Lowe, M.C., D.F.C. No. 25 (F) Sqdn. (Armstrong Whitworth Siskin, Jaguar), O.C. Sq. Ldr. R. S. Aitkin, M.C., D.F.C

Blue Colony also had an imaginary Aircraft Depot at Tangmere and emergency landing grounds at Old Sarum and Gosport.

Blue Colony aerodromes containing petrol, oil, bombs and ammunition for one month were available at Upavon, Andover, Worthy Down, Tangmere, Lympne, Hawkinge, Manston and Eastchurch.

The only Ground Forces were in Red Colony and consisted of the 1st Anti-Aircraft Searchlight Battalion commanded by Colonel P. W. Bliss, and mobile military posts on the frontier.

Operations Begin.

The Air Officer Commanding Red Colony and the Air Officer Commanding Blue Colony assumed command of their Forces at 23.59 hours on Friday, Aug. 8. The Units of each Command were, at that time, at the Stations or Camps required by normal training. During Aug. 9, 10, and 11,

CONCENTRATION.—One of the two Squadrons of Bristol Bulldogs (Jupiter) on the aerodrome at Halton on Aug. 10, where they stayed the night on the way to their War Station.

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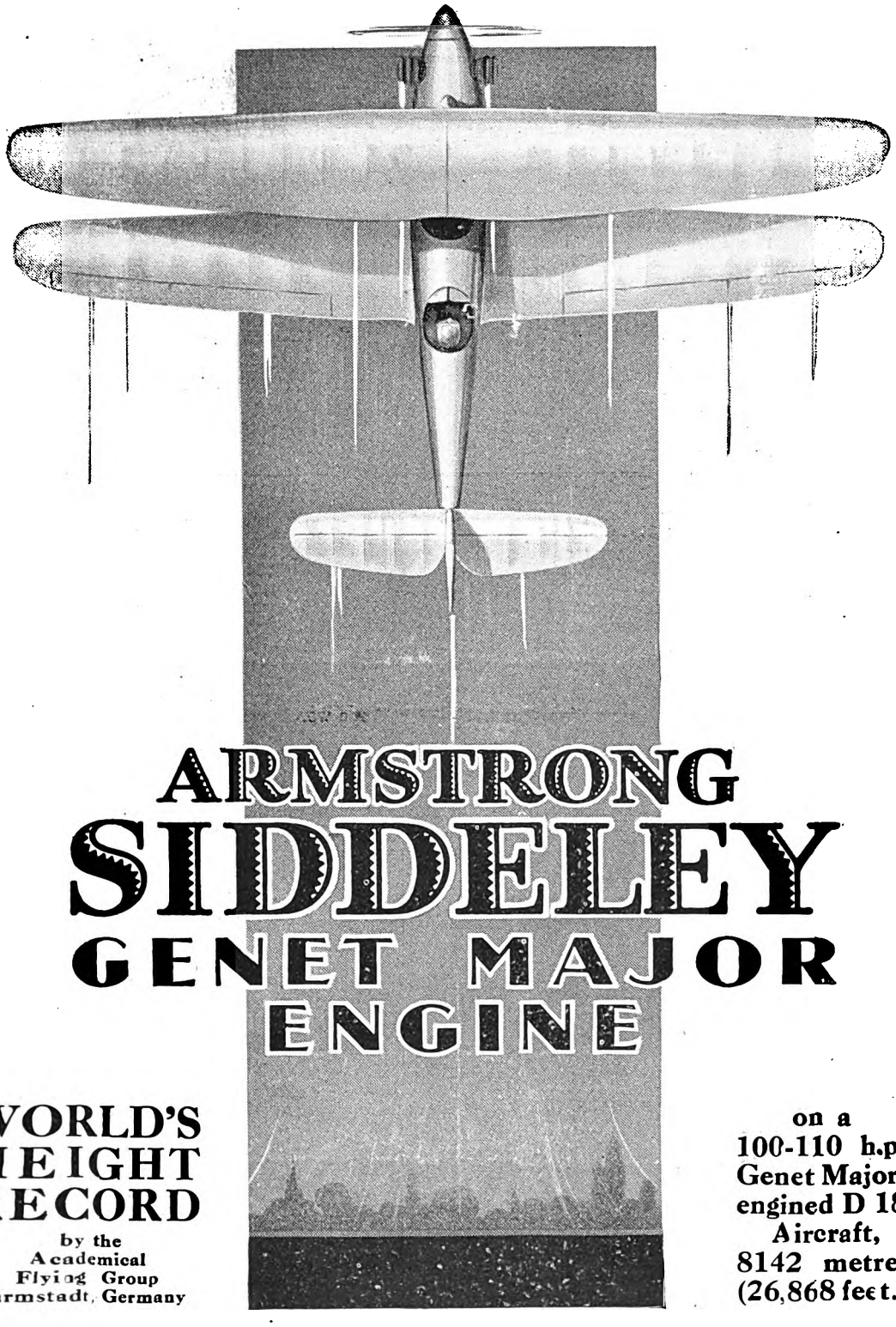
26,868 Feet



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Units were moved to new stations for the Air Exercises. Some of these moves occupied two days, and the Units remained for the night at a concentration camp.

A visit by civilians to one of these concentration camps was authorised on Aug. 10. The camps were Halton, Henlow and Catterick.

At Halton No. 3 and No. 17 (Fighter) Squadrons arrived at about 14.00 hours, followed two hours later by their ground transport. Each Squadron had eleven machines (Bristol Bulldogs, Jupiter engine), and three or four lorries. Orders to move were received by squadron commanders from Headquarters by wireless telegraphy and so efficient was the organisation within the squadrons that the pilots were in the air before they were told, by radio telephony, where they were to go. The two Fighter Squadrons at Halton had flown from Upavon in perfect formation below clouds that were at less than 1,000 ft.

Unlike Army Co-operation Squadrons, Fighter Squadrons are not expected to carry camp equipment because they normally operate from home or forward aerodromes, but they carried in their ground transport all the equipment necessary to maintain mechanical efficiency during the Exercises.

At the concentration camps the *personnel* were accommodated at the Station used as a camp and the machines were re-fuelled by mobile tanks from the petrol supply of the Station. At Halton the absence on leave of the three thousand Aircraft Apprentices normally stationed there presumably left ample accommodation for the troops, but the aerodrome is not in any way suitable for high-speed aircraft.

At all concentration camps the machines were picketed out in the open. Screw-pickets were among the equipment carried by the ground transport.

On August 11 the Squadrons moved to their War Stations. Particularly in Blue Colony many of the War Stations were the normal training stations of Units, but every effort was made to keep these stations secret. One day-bomber squadron moved every day,—to the helpless indignation of THE AEROPLANE staff photographer.

Certain Fighter Squadrons stayed at home enjoying the comfort of their own Stations and relied, with some success, on their own speed and efficiency to prevent the enemy bombers from destroying them in their sheds.

Some of the squadrons found themselves quartered at those Stations which are normally devoted to the training of the young and have acquired thereby a somewhat pious and academical outlook on life. They found themselves greeted with a warmth and enthusiasm which was not dimmed by the fact that in many instances leave had been stopped to receive them. There seemed to be an atmosphere which indicated that leave was well lost for the opportunity of seeing the real work of the combatant units and discussing War instead of preaching it.

COMMUNIQUES.

During the Exercises a daily *communiqué* was issued to the Press. These were composed by the Narrative Staff at Uxbridge from information received from the Headquarters of both Forces. The natural difficulty of obtaining information of a general nature during the Exercises forces one to use these *communiqués* in full so that the readers of THE AEROPLANE may have an idea of the general progress of the operations.

Press Communiqué No. 1. 17.30 *hours. Aug.* 11, 1930.

Secrecy surrounds the Island of Incognito. The Red and Blue Air Forces—each on their own side of the Frontier—have moved, or are still moving, to the selected points from which they will operate if war follows the expiration of the ultimatum at 11.00 hours to-morrow.

Both sides are taking every precaution to guard the secrecy of their dispositions, since upon the element of surprise will largely depend the chance of success in the preliminary encounters.

The Air Officer Commanding the Forces of Blue Colony will probably concentrate upon preventing the mineral output of the Red Colony mines from reaching Redland and thus assisting that country's output of munitions. The Red Colony commander, on the other hand, has a more complicated task before him. He will wish to ensure the security of the mines, but this security will be of little use unless serious damage to the railway, port of embarkation, and the canal which connects these with the sea can also be prevented. Moreover, the spirit of the local inhabitants is far from certain, and there will probably be heavy calls upon him for the local defence of individual towns and centres of population. He has, however, at his disposal, a number of fighter squadrons, and if these can prevent successful attacks by the bombers of the Blue Force, he will have done much to achieve his object, even if his own bomb raids into Blue territory prove unproductive.

Press Communiqué No. 2. 22.30 *hours. Aug.* 11, 1930.

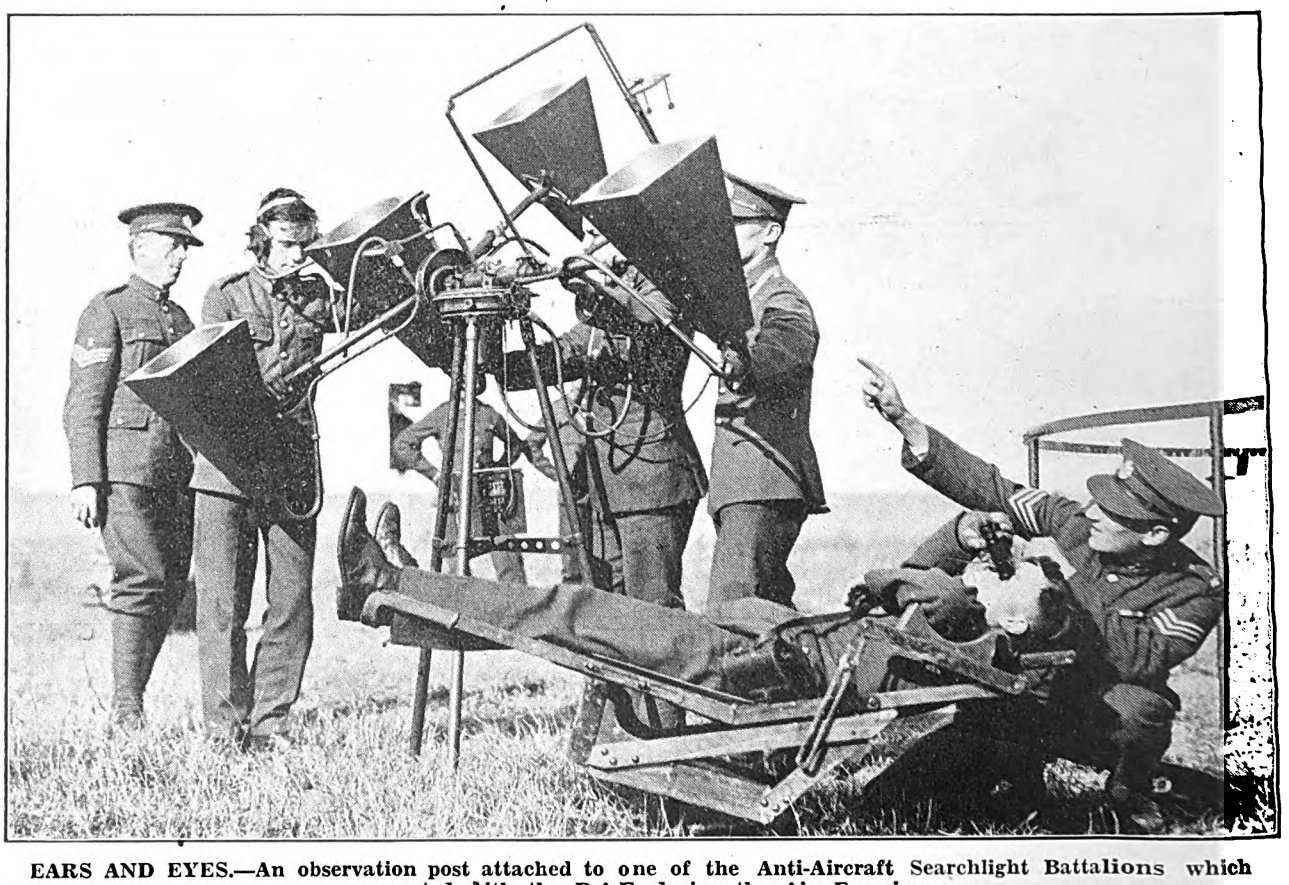
Movements of Red and Blue Forces have proceeded in accordance with plan.

Press Communiqué No. 3. 10.00 *hours. Aug.* 12, 1930.

No reply has been received from Redland to the ultimatum presented by Blueland. War may therefore be regarded as inevitable.

IN THE RED CAPITAL.

Cranwell, besides being the capital of Red Colony was also the Headquarters of its Air Force on the outbreak of War. Some of the difficulties confronting the Staff of an Air Defence of Great Britain Command removed from its normal location can be imagined when one states that instead of the elaborate system of observation posts and telephonic communication which are normally components of the A.D.G.B., the Red Air Force Commander had only an office with a map and a telephone at Cranwell. Air Vice-Marshal Dowding explained that his Headquarters like the rest of his Force were essentially mobile and could and might very



EARS AND EYES.—An observation post attached to one of the Anti-Aircraft Searchlight Battalions which co-operated with the R.A.F. during the Air Exercises.

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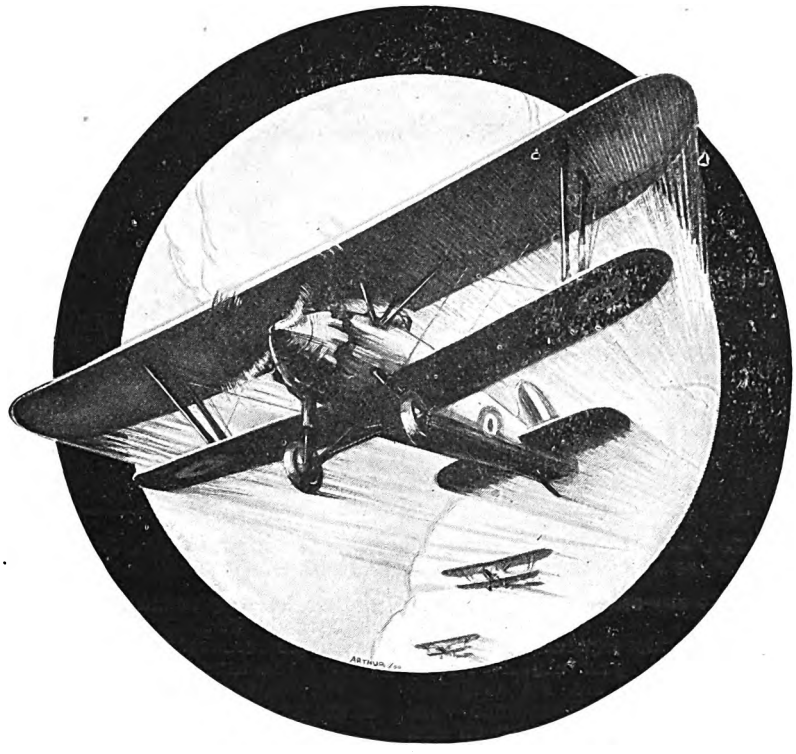

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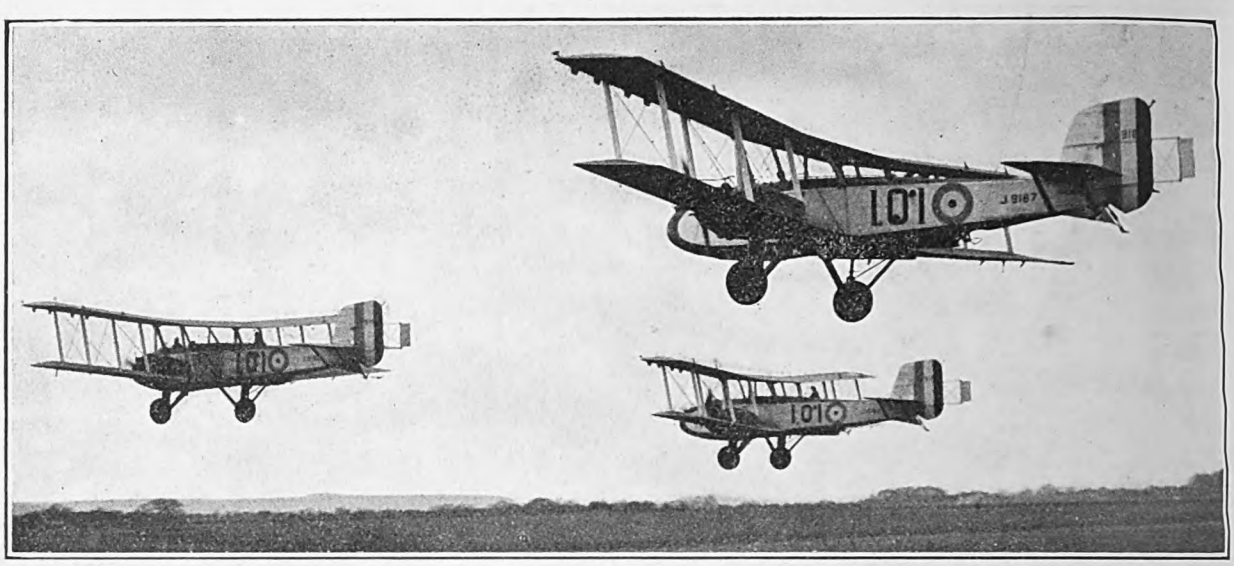


"MENS AGITAT MOLEM."—A Flight of Boulton and Paul Sidestrands (two Jupiters) leaving their aerodrome at Andover for a raid on Red Colony.—("Aeroplane" photograph.)

likely be moved at short notice to any other strategical point as the necessity arose.

Cranwell was defended by two Fighter Squadrons equipped with Armstrong Whitworth Siskins (Jaguar engine), No. 29 (Fighter) Squadron for day work and No. 111 (Fighter) Squadron for night defence. Both these Squadrons were fitted with radio-telephony and camera guns and each had ten machines.

The last few hours before the expiration of Blueland's ultimation was spent in testing the R/T equipment and running-up engines on the ground. At 11.00 hours all ranks of No. 29 Squadron stood by and two machines went up on patrol.

The intelligence system of Red Air Force was a profound secret, but a few observation posts were known to exist on the frontier and these were presumably sending W/T messiges in code to Headquarters.

Enemy raiders were expected from 12.00 hours onwards, but an hour passed without any sign of them. At 13.00 hours a squadron of Blue Foxes came over at about 10,000 ft. They dived through a layer of clouds and fired the cloud of stannic smoke which indicated bombs at about 5,000 feet.

The result of this raid had to be worked out and the possibility of the raiders having been shot down on the frontier had to be considered, but meanwhile the line of their flight plotted on the *camera obscura* chart pointed to their having got very near if not actually onto their target. No previous warning had been received, but at the first sound of the bombers three fighters took off and climbed after them. The fighters were hardly out of sight when a formation of six Blue Sidestrands came over at about 5,000 feet and cruised leisurely round their target and made off apparently unscathed. Their line of flight only just touched the edge of the *camera obscura* chart, but allowance for drift may have given them a hit. The fighter formation on its way back from fruitless pursuit of the Foxes gave battle to the Sidestrands some way north of Cranwell. One of the Sidestrands was lagging badly behind the formation and might have been shot down. But on the other hand the fighters might easily have been shot down themselves by the heavy odds of armament against them.

A libellous description of these operations seems to have emanated from No. 111 Squadron and describes two formations of bombers as having destroyed Cranwell while No. 29 Squadron was at lunch.

Press Communiqué No. 4. 18.00 hours. Aug. 12, 1930.

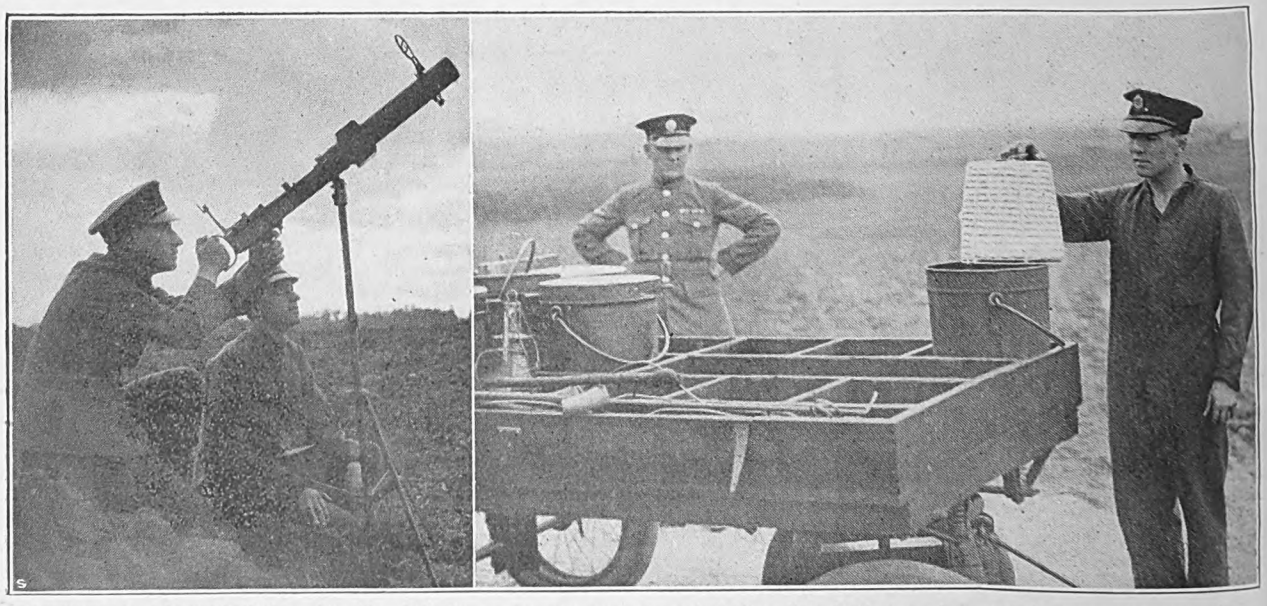
Immediate activity on both sides followed the expiration of the ultimatum at 11 o'clock this morning. Following a reconnaissance, Red bombers in small formations carried out a series of raids on Upavon, Worthydown and Tangmere. They were intercepted by formations of Blue Fighters and many engagements took place. Manston was simultaneously attacked by formations of high and low flying aircraft. Day bombers operating at 4,000 feet and fighters at 150 feet pressed home attacks on the hangars and on aircraft observed on the ground. These attacks were followed by a low flying raid on Lympne, carried out by fighters. At this aerodrome also a number of aircraft were discovered on the ground.

Attacks have been carried out by Blue day bombers on the smelting works at Bircham Newton and Hucknall, upon the naval port of Skipsea, and the capital of Red Colony, Cranwell

The Umpire Staff have not yet assessed the results of the air fighting and of the bombing attacks.

Change of Scene.

A lull in the operations over Cranwell came about 14.00 hours so we went over to Waddington to see what was



GROUND EQUIPMENT.—On the left is a camera-gun mounted for the defence of a probable objective for raiders. On the right is the equipment for the night-landing flares. These flares are fed from a five-gallon drum of paraffin, the flow of which is hand-regulated.

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Capt. C. D. BARNARD

who recently completed a record light aeroplane flight to

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—C. D. Barnard.

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happening there. Waddington is a good aerodrome with an exceptionally fine surface and two blocks of rather small sheds. It is normally the station of No. 503 (County of Lincoln) Squadron, one of the cadre squadrons with a proportion of Special Reserve *personnel*.

Here, with a glorious disregard for War, one of the local pilots was practising landing a Hyderabad. He was alone in the machine and some of his landings caused those spectators who are unaccustomed to watching the young idea correcting its own mistakes with a deadly perseverance to turn away with closed eyes and hollow groans. However he made good progress and did several excellent landings before he finished (his practice, not the machine).

I heard later that the patrols at Cranwell had several times spotted a mysterious bomber in the distance and had given chase only to find it a myth. Cause and effect perhaps.

Hidden in the sheds at Waddington was No. 99 (Bomber) Squadron preparing for a long-distance raid into Blue Colony. The Hinaidis were somewhat cramped in these small sheds but they were successfully hidden. Nor was there any sign of their ground transport. They left at about 17.00 hours with orders to re-fuel at Upper Heyford and continue their raid by night. I do not think they returned to Waddington, because their ground transport left at the same time. They probably returned to their forward station.

The new tail-trolley was in use at Waddington but unfortunately one or two of the machines had the wrong sort of tail skids and could not use the trolley. I watched with interest one Hinaidi being taken out of its shed and onto the aerodrome by twenty-five men and the other Hinaidi being moved on the trolley by one man. When the second machine got outside a few men held onto the wing, not because the trolley could not do the work but because there was a stiff breeze blowing and they were not taking any chances.

The trolley had a small engine in it and caterpillar wheels and had an automatic braking device which stopped movement in either direction when the man in charge of it took his hand off the handle. This simple and ingenious device was invented by a serving officer of the R.A.F. while he was in command of a squadron of heavy machines in 'Iraq.

Press Communiqué No. 5. 23.00 hours. Aug. 12, 1930.

A heavy offensive has been maintained throughout to-day by Blue aircraft against a number of important objectives in Red Colony. In addition to the attacks reported in the last communique upon Bircham Newton, Hucknall, Skipsea and Cranwell, the port of Catterick, from which all minerals from Red Colony are shipped, was heavily attacked by a considerable force of heavy bombers. As a result of the long distances involved in the majority of the Blue operations and the consequent late return of the aircraft, the Umpires have not yet determined the damage done.

The complete results of the attacks by Red aircraft upon Blue Colony have also not yet been fully determined, but the following casualties have been awarded:—

At Manston five Blue aircraft were destroyed, and eight damaged.

At Tangmere one aircraft was destroyed and one damaged. One Red fighter was shot down.

The weather conditions have been uniform in Red and Blue Colony and have been particularly suitable from a training point of view. There has been broken cloud at from two to three thousand feet, with rain showers in various parts of the country at intervals.

Addendum to Press Communiqué No. 5. 23.45 hours. Aug. 12, 1930.

As a result of attacks on the Blue Force aircraft depot at Tangmere by Red aircraft, four Blue aircraft were destroyed and eight damaged.

Information has been received that one particularly successful raid was made to-day by Blue bombers on Cranwell. Surprise was complete, and the defending Red aircraft did not succeed in getting off the ground until the attack had been carried out and the Blue aircraft were on their way home.

A rapid change of base was effected by certain squadrons at one of the Red Colony aerodromes to-day. Having sighted a Blue reconnaissance machine, and realising that their presence must have been discovered, they moved to other aerodromes during the afternoon, and are now once more in operation from their new bases.

The sky over Lincolnshire throughout the day was full of aeroplanes. Motorists stopped on the side of the roads and watched bomber formations appearing and disappearing through the clouds. Harvesters stopped reaping and binding to watch fierce battles in the air and roadmenders dropped their picks with more than usual alacrity to scan the skies.

Night Work.

At 22.00 hours Cranwell was ready for the night raids. The landing flares were blazing, several of the sheds were brilliantly lit within and red lights glowed on the roofs. A mere spectator looked at it sadly and said: "Of course I am not conducting this War, but that is what I should call 'A good pull-up for Bombers'."

No. 111 (Fighter) Squadron was lined up in one of the darker corners of the aerodrome. The absence from Cranwell of the special arrangements which exist at Home Defence Fighter Stations for warning squadrons of impending raids, necessitated a temporary scheme. Three machines were ready with the engines warmed up at intervals and in two of these the pilots were sitting ready to take off. The Hucks starter was in front of one of the machines. The pilots and mechanics for the second patrol were standing-to ready to take the place of the first two to take off. The third machine of each patrol was ready in case one of the others failed to start.

The Permanent Staff at Cranwell took an intense interest in the night-flying, which is not often seen at this Station. The enthusiasm had spread even to the hospital orderlies who, at their own suggestion, slept on the floor of the emergency block so as to be on the spot if they were wanted. The ambulance and fire-tender practised flying starts along the tarmac at intervals. Whether this activity was appreciated by the pilots is a questionable matter but it showed the right spirit. The searchlights which were stationed to the south of the aerodrome and round Grantham were tested just before dark.

THE SIGNALLER.—The tail-gunner in a Vicker's Virginia signalling by night with an Aldis lamp.
—("*Aeroplane*" *photograph.*)

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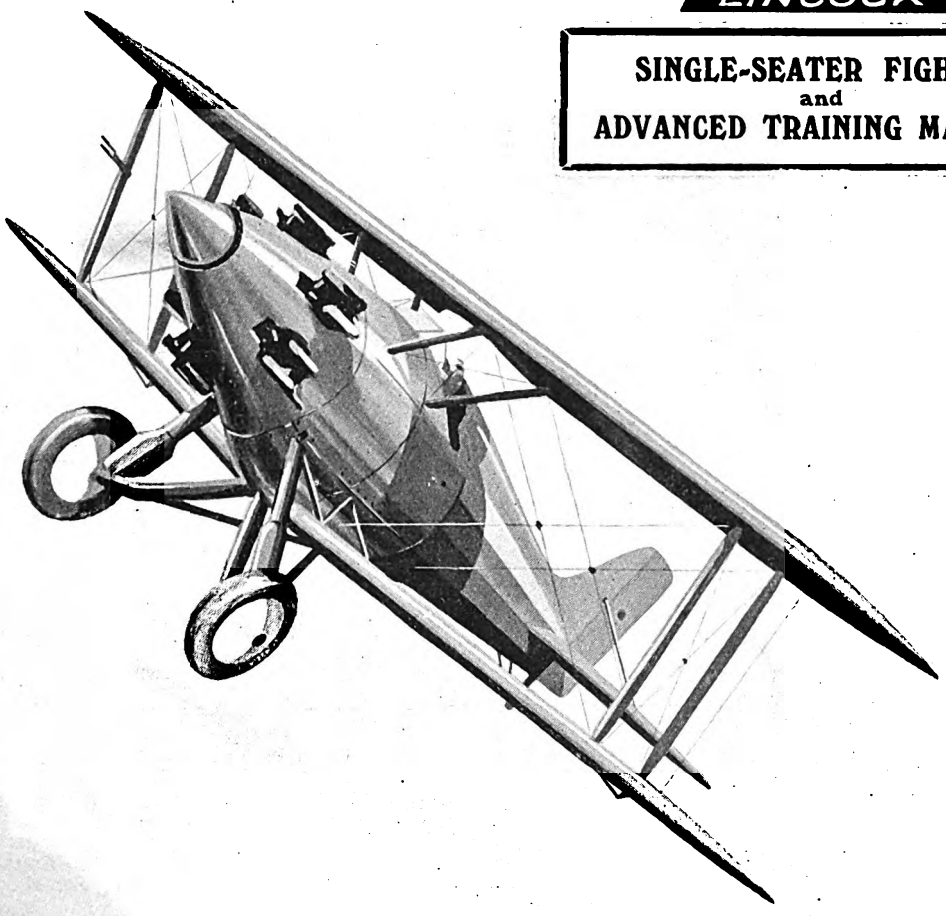

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The first warning came just before midnight and was said to be an intercepted W/T message from Blue Colony. On the following day one was informed by Blue Colony that the interception of W/T messages by Red Colony would be quite impossible because they were all in a highly secret code. Anyhow a Klaxon horn screeched, the searchlights shot into the sky and the Hucks starter got busy. Within a few seconds the two fighters had taxied into the flare-path and taken off.

The watchers on the ground saw the navigation lights of a bomber before the searchlights had found it and almost immediately they could see the lights of a fighter just below it. The fighter was quickly in position and fired the green Véry light to claim a win. The bomber continued its course and fired the red light which indicated a bomb.

A fighter pilot fires his Véry light when he is within 200 yards of his mark and in a good position but the firing of the light does not necessarily indicate a casualty but frequently only a piece of optimism on the part of the fighter.

The fighter patrol moved up and down the line near where the first bomber had appeared and while they were doing this the second bomber crept in from the other side of the aerodrome registered a hit on the sheds and was gone again flashing his recognition light, and out of sight before he could be overtaken. More signals of approaching raiders came through from the frontier and although they had crossed the frontier in groups they approached the aerodrome singly.

Raids over Cranwell continued throughout the night, with mixed results. The weather, which had been fairly clear at midnight, turned to drizzle with bad visibility, but in spite of that through gaps in the clouds one could see fighters attacking bombers and lights flashing throughout the night.

Press Communiqué No. 6. 10.30 hours. Aug. 13, 1930.

The outstanding event of yesterday's operations was the daylight raid by Blue heavy bombers against the port and canal locks at Catterick. Eight machines, in spite of exceptionally unfavourable weather conditions, invaded Red territory via the Sealand Pass, crossed the Pennine Range, effected a complete surprise and in the absence of opposition were able to carry out an unhurried bombardment of points of vital importance to Red Colony.

During the evening a large number of attacks against Andover, Lympne, Manston, Tangmere, Worthy Down and Upavon were carried out by Red Colony low flying fighter aircraft and day bombers. These attacks continued until 20.00 hours. Blue Colony, on the other hand, was content with attacks by small formations of bombers on Cranwell, Hucknall and Skipsea. Both sides, however, showed considerable activity during the night.

In spite of unfavourable weather conditions, no less than 20 separate attacks were made by formations of Red aircraft. Blue Force Headquarters at Andover, the Aircraft Depot at Tangmere, and the aerodromes at Andover, Tangmere, Upavon, Lympne, Manston and Eastchurch were the object of harassing attacks intended to hinder the night operations of the Blue Force commander. The latter was operating, due to his successful use of part of his heavy bombers in the day attack on Catterick, with a reduced strength. None the less, he pressed home a series of attacks against Cranwell and Bircham Newton. The latter station, which escaped serious damage yesterday due to the interception of the attack by Red fighters received particular attention. The Red Commander evidently anticipated strong attacks on Cranwell, and carried out constant night patrols by fighters in conjunction with his searchlight defences. No combat in this area has, however, been reported.

The Umpire Staff have found great difficulty in assessing casualties in air fighting and bombing, and definite results are still not available. In view of the heavy air fighting and the numerous bombing attacks, however, casualties to personnel and material on both sides are expected to be heavy. The following figures as regards aircraft casualties to date are purely tentative.

It is believed that 23 Red machines have been destroyed and 10 damaged. Of these 13 were destroyed and 10 damaged in air fighting.

As regards Blue aircraft, it is claimed that 34 have been destroyed and 47 damaged. Only 8 of these casualties occurred in air fighting, and the remainder are largely due to the energetic bombing of Blue's aircraft depot at Tangmere.

This morning (Aug. 13) operations started with high and low attacks, of the type favoured by the Red commander, upon Andover and Upavon.

Operations are proceeding.

In Blue Colony.

Watching night operations after watching day operations, with the consequent almost entire absence of sleep in the 24 hours, gives a profound sympathy for the Staff in Exercises of this sort. But perhaps they sleep standing like horses, or all the winter like bears.

On Aug. 13 The Aeroplane's War correspondent moved, with some trepidation, from Red Colony to Blue Colony. However,—none of those mysterious frontier posts was in evidence nor was one arrested as a spy.

An air of intense secrecy hung over Andover, the Headquarters of the Blue Air Force. Press representatives were ushered into an office and engaged in polite conversation of such length that their suspicions were immediately aroused and they expressed a desire to go out and have a look at the War. No fresh subject of conversation being available they escaped onto the aerodrome to see a squadron of Foxes lined up and in the foreground the Fairey IIIF. of No. 24 (Communication) Squadron in which His Royal Highness the Prince of Wales travels.

A few minutes later His Royal Higness, accompanied by Air Vice-Marshal Sir John Steel and officers of his Staff, and by Sq. Ldr. D. S. Don, who was piloting the machine, came from Headquarters and, after very graciously posing for The Aeroplane photographer, His Royal Highness got into his machine. The Foxes took off in formation followed by the Prince's machine, and left for a raid on Cranwell. His Royal Highness had spent the morning of that day in the Operations Room at Uxbridge and was anxious to see more of the Exercises. Two fighters patrolling over Andover had spotted the Fairey IIIF., which type was used only by the Red Air Force, and had therefore attacked it without realising that it belonged to a non-combatant Unit.

The Foxes had only just left the aerodrome, with the Prince's machine behind the formation, when Andover was attacked by No. 23 (Fighter) Squadron of the Red Force. The Gamecocks came in low down and were not spotted until they were right on top of Headquarters. They dived in line ahead, each machine of the Squadron making two dives before they flew off again. Somebody said that they

THE BLUELAND AIR HEADQUARTERS.—Air Vice-Marshal Sir John Steel, A.O.C. Blueland Air Force, following the track of his raiders in the Operations Room at Andover. On the right is Wing Cdr. W. A. McClaughry, D.S.O., M.C., D.F.C.

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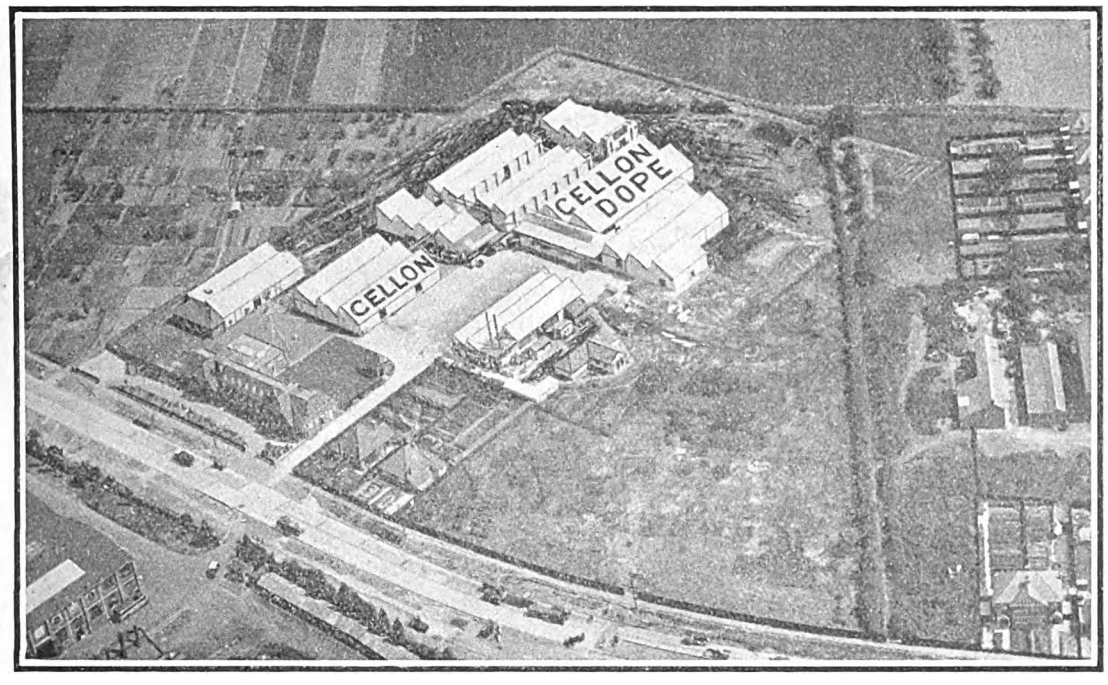
A SUBTLE COMPLIMENT



The above "Evening News" photograph was accompanied with the words "The Air Sign Posts of London—(8) The 'Dope' Works at Kingston." The black lettering upon the staring white roofs of the Cellon Aeroplane Dope Works at Kingston makes a valuable guide for airmen in bad flying weather.

The subtlety of the compliment paid to the fame of Cellon, in choosing the Cellon works as a sign post, is almost exceeded by the "Evening News" reference to the Cellon factory as the Dope Works.

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kept on doing it and nobody could find out where they went, but that apparently they were tied up to a tree in the neighbourhood. Certainly they came over and did it again an hour later.

So far as one could make out the only real secret at Andover was that there were a few night-bombers hidden in one of the sheds, though why such an obvious target as Air Headquarters was selected for hiding long-range bombers was hard to understand.

Press Communiqué No. 7. 18.00 hours. Aug. 13, 1930.

Blue attacks to-day were principally directed on Cranwell, Hucknall and the anchorages at Skipsea and Donna Nook. The attacks on the latter objectives were due to information having been received in Blue Colony that the heavy attack on the port of Catterick yesterday had caused the diversion of shipping and an attempt would be made to ship minerals from the naval anchorages. Large convoys were understood to be due at noon to-day at both Skipsea and Donna Nook.

The morning attacks on Cranwell were initiated by a squadron of day bombers followed by a series of raids by flight formations of fast bombers. Red fighters succeeded in engaging several of the bombing formations, and one of the squadrons was engaged over Blue territory by a squadron of Red fighters. A lively engagement ensued, and heavy casualties on both sides are probable.

Red aircraft, both bombers and fighters, continued their offensive against Blue aerodromes, particularly at Upavon, Manston, Andover and Eastchurch. Many of these attacks caught Blue aircraft on the ground. Blue fighters were, however, active in defence, and various engagements ensued. Hence, it has not yet been possible to estimate the casualties and damage.

The weather has been generally extremely favourable for training. There has been a light westerly wind, sky almost entirely covered with cloud at heights varying from one thousand to three thousand feet. A few light showers have occurred in places. Visibility has been good.

Press Communiqué No. 8. 22.30 hours. Aug. 13, 1930.

The feature of to-day's operations has been the success of the offensive carried out by Red aircraft against Blue aerodromes. Eastchurch was attacked during the morning by a squadron of day bombers and two squadrons of fighters. At 10.05 hours a squadron of fighters dropped explosive and incendiary bombs on nine day bombers which were being put into the hangars. At 11.16 hours a further ton of bombs was dropped on the hangars. At 12.40 hours a squadron of fighters dropped incendiary bombs. It is estimated that as the result of these three co-ordinated attacks the Blue aircraft at Eastchurch were destroyed.

A further successful Red attack was made during the afternoon on the aerodrome and depot at Tangmere. Heavy damage to the depot sheds and aircraft is claimed. In addition, one aircraft on the aerodrome is understood to have been destroyed and two to have been damaged.

Bombing attacks were also launched against Andover and Upavon aerodromes by formations of Red bombers. Six Blue aircraft are claimed to have been destroyed on the ground, and ten damaged.

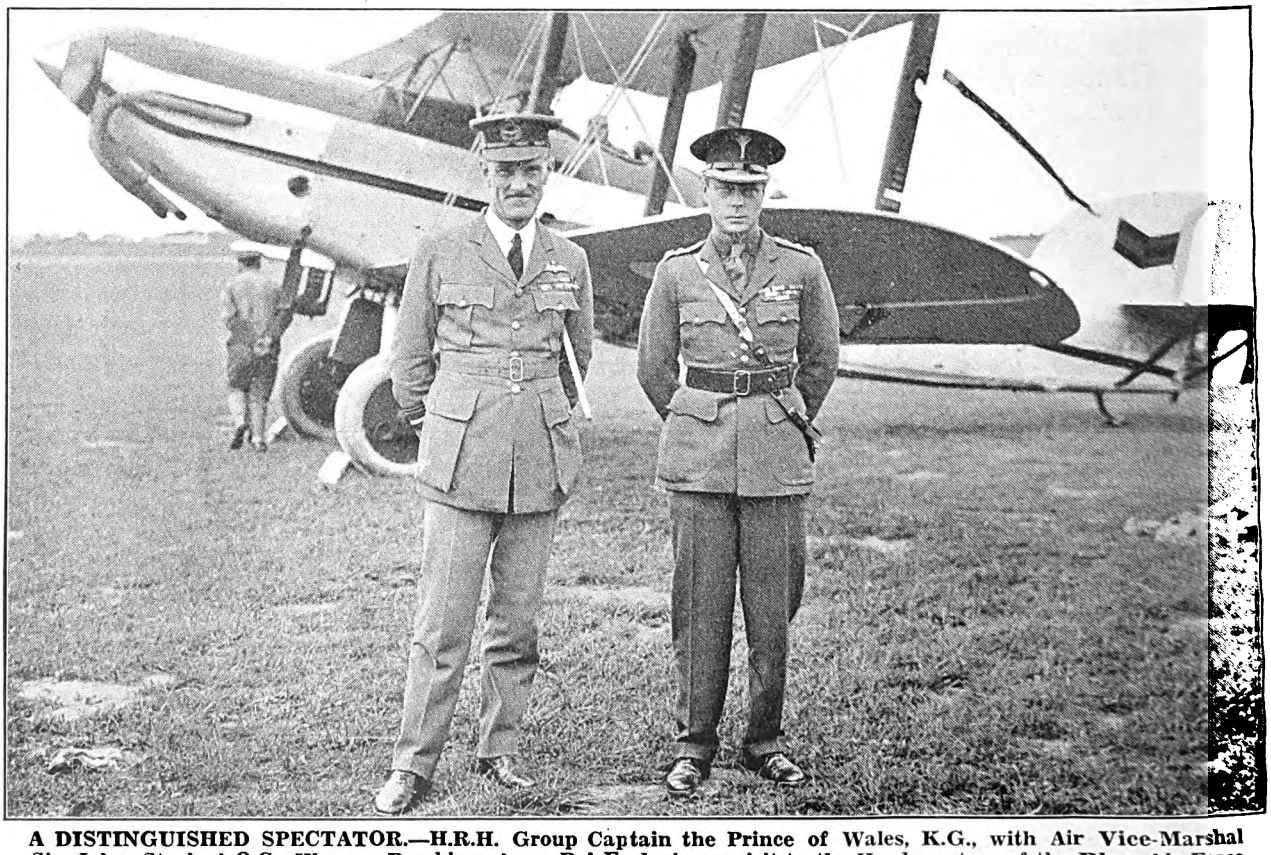
During these attacks there was considerable air fighting. A formation of six Blue fighters attacked a Red formation approaching Upavon. One of the fighters was destroyed. An offensive patrol of eight Red fighters came in contact with a formation of four Blue fighters near Upavon. Two Blue aircraft were destroyed, and one Red was damaged. On the other hand a Blue fighter patrol operating in the Andover-Upavon area succeeded in shooting down three Red reconnaissance aircraft.

Blue attacks have been carried out on Cranwell, Hucknall, Bircham Newton, and the anchorages at Skipsea and Donna Nook. Two very successful attacks were made on the smelting works at Bircham Newton and serious damage was done to the factory buildings.

Fifteen Blue aircraft at intervals attacked shipping in the Red anchorage at Skipsea and considerable damage was caused.

The Red capital and Headquarters at Cranwell were attacked four times during the day by a Blue squadron of bombers. Red fighters intercepted three of these attacks, but no casualties have so far been reported.

THE PRINCE OF WALES.—H.R.H. Group Captain the Prince of Wales putting on his flying kit before joining a raid during the Air Exercises. On the right is Air Vice-Marshal Sir John Steel.
—(*"Aeroplane" photograph.*)



A DISTINGUISHED SPECTATOR.—H.R.H. Group Captain the Prince of Wales, K.G., with Air Vice-Marshal Sir John Steel, A.O.C. Wessex Bombing Area, R.A.F., during a visit to the Headquarters of the Blue Air Force during the Air Exercises.—(*"Aeroplane" photograph.*)

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We took off at 21.15 hours, a time calculated to enable us to cross the frontier immediately after dark. At two thousand feet the engines were throttled back while the other two machines picked up the formation. At between three and four thousand feet we took a course to our objective, Northolt, flying over Basingstoke, Farnborough, Brooklands and Staines. During part of the flight the machine was controlled by the automatic pilot.

The aerodromes at Brooklands and Farnborough showed landing lights and the beacon at Farnborough was flashing.

We dived onto Northolt and loosed off a "bomb" from about 2,000 feet and another a minute later. An excited fighter on the aerodrome took off without bothering about the flare path and was very soon on our tail and shooting green lights at us. We climbed away and headed for home. The low clouds of which we had been warned came rolling up. Two more fighters attacked us and we saw others in the distance.

We sighted another machine from No. 7 Squadron in front of us near Basingstoke showing the two violet lights which are used in addition to navigation lights for keeping formation at night.

Over Worthy Down there were five Virginias circling the aerodrome trying to land. One by one they dropped down along the flare path and turned and taxied to their sheds. In the sheds the machines seemed to be packed in remarkably tightly and one was told that the new tail trolley makes it possible to accommodate one more machine in each of these sheds than when the machines were manhandled.

Press Communiqué No. 9. 10.30 hours. Aug. 14, 1930.

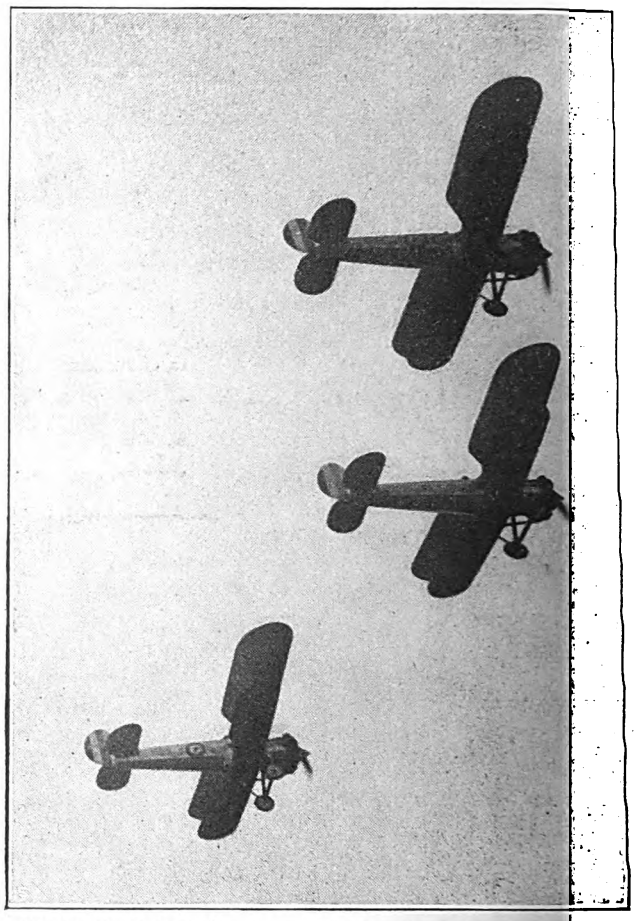
During the earlier part of yesterday evening two formations of three Red bombers attacked Andover aerodrome from a height of 2,000 feet. Two aircraft on the ground were destroyed and five damaged. One of the attacking aircraft was shot down by the ground defences. The second formation was also attacked by a patrol of three Blue fighters, but the combat was declared indecisive.

Later, Worthy Down was raided by a formation of five fighters, which succeeded in destroying one twin-engine bomber and damaging a second. Two of the attackers were shot down by the ground defences. The remainder, on their return journey, met a formation of eight Blue bombers, which, in spite of shortage of ammunition, they attacked. As a result, one more fighter was shot down.

Whilst these raids were taking place, nine Blue fighters attacked the aerodrome at Upper Heyford with satisfactory results. They found a number of twin-engine and single-engine bombers on the ground, and with bombs and machine-gun fire destroyed two and damaged three. Two of their own machines were, however, shot down by the ground defences.

The weather began to deteriorate seriously at dusk. Rain in the western area and low clouds hampered the operations of the night bombers. Blue aircraft, however, were able to attack the Red aerodromes at Bicester and Upper Heyford with heavy bombs. Northolt was similarly attacked, but here the raiders met with heavy opposition. One was shot down by defending fighters after it had released its bombs, and a second was driven off. In the course of the fighting one fighter was shot down and destroyed. Heavy and successful attacks were also carried out on Kenley and Biggin Hill.

At 23.45 hours the weather was such as to make any further night flying impossible, and operations were accordingly suspended by the Directing Staff until dawn this morning.



INTERCEPTERS. — A Flight of Bristol Bulldogs (Jupiters) going up to intercept a raid. The two Bulldog Squadrons, No. 3 and No. 17, were stationed at Hornchurch and guarded the Chelmsford Pass.
—("*Aeroplane*" *photograph.*)

THE MASSACRE OF THE INNOCENT.

On Aug. 14 I returned to Andover with the object of going to Upavon to see the Hawker Hart squadron, No. 33, go out on a raid. But this elusive squadron had left Upavon and was changing its Station after every raid.

Although the wind had risen to gale force and the fighter squadrons at Upavon were battened down to their sheds, the Red Gamecocks came over Andover again to have another smack at Blue Headquarters. After making a savage attack on an innocent Bristol Fighter used for communication and not engaged in the War, they took themselves off again. The Bristol Fighter was hurriedly put under cover.

[This incident only shows how innocous civilians must suffer with the hired assassins in the next war.—ED.]

Press Communiqué No. 10. 18.00 hours. Aug. 14, 1930.

To-day the weather conditions have shown a marked change. There has been strong wind reaching gale force at time, with variable skies and occasional showers. Owing to the greater distance which his bombing aircraft have to travel to reach some of their objectives, the Blue Commander's difficulties have been much increased by this change. None the less, attacks have been carried out on Hucknall, Skipsea, Bircham Newton and Upper Heyford.

Bircham Newton was twice raided by bomber squadrons, but as the first of these formations encountered a squadron of Red fighters before reaching the objective, this particular raid was probably abortive. The second raid was carried out by an auxiliary squadron which

WHERE DID THAT ONE GO TO?—Pilots and air gunners examining a map of their route after a raid into Red Colony.
—("*Aeroplane*" *photograph.*)

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successfully reached the target, but had to fight its way home in the face of opposition by Red fighters.

A particularly successful raid was carried out on shipping anchored at Skipsea. The bombers carrying out this raid met very difficult weather conditions and were in the air over five and a-half hours.

To-day the Red Force has shown very great activity. Commencing shortly after dawn with a series of destructive raids on Andover, Upavon and Worthy Down, Andover was again subjected to a heavy attack by bombers and low flying fighters at 10.15 hours. Opposition from Blue fighters was encountered and there was some lively air fighting. Manston and Eastchurch were both heavily attacked. At Eastchurch a squadron of day bombers was caught leaving the ground, and was closely attacked by a squadron of fighters. Casualties and damage at this aerodrome must have been heavy, particularly as a short time later a further combined attack by a fighter and a day bomber squadron took place.

Red forces also claim to have caught Blue aircraft on the ground at Lympne, and subjected these to a low bombing attack.

Press Communiqué No. 11. 23.30 *hours. Aug.* 14, 1930.

To-day the most interesting event has been the major operation carried out by Blue Forces against Cranwell and Hucknall. The experiment of using heavy night bombers for daylight raids, which had proved so successful previously against Catterick was repeated. In order to draw off the defending fighters both centres were first attacked by squadrons of day bombers. In addition a squadron of day bombers attacked the Red aerodrome at Duxford and then proceeded to the neighbourhood of Northolt, in order to engage the attention of any Red fighters located at these aerodromes. As a final precaution a strong fighter patrol was kept in the air in the neighbourhood of the Reading Pass to hinder any pursuit of raiders returning to their own territory.

With these preliminaries, Cranwell was attacked between 18.25 and 19.00 hours by eighteen day- and eight heavy night-bombers. Red fighters put up an active opposition, but it is claimed that the attack was none the less carried out successfully. Umpires' results are not yet available. It is known, however, that one night bomber made a forced landing in enemy territory and that the remainder were attacked for a second time on landing at their base. Heavy bombers also attacked Hucknall and, meeting with no opposition, carried through a successful operation, returning without casualties.

Red Forces this afternoon attacked the Blue aerodromes at Manston, Worthy Down and Andover. Considerable opposition was experienced from Blue fighters. Manston was again attacked, and low flying raids were carried out against Andover and Worthy Down. Particularly successful results are claimed at Andover, but details are not yet available.

A feature of the day was the amount of air fighting, particularly between fighter and fighter, in the vicinity of the Reading Pass.

The weather has been very gusty. Wind from the north-west has reached gale force at times. Visibility has been good.

Press Communiqué No. 12. 10.00 *hours. Aug.* 15, 1930.

Early yesterday evening a Red Force of nine low flying fighters and nine day bombers raided the Blue depot at Tangmere, destroying eleven and damaging thirteen aircraft; in addition, a Blue aeroplane starting out on reconnaissance was shot down. Red losses were limited to one fighter shot down by ground defences. Manston and Eastchurch aerodromes were also attacked. Two Blue aircraft were damaged and one Red machine was shot down by the defences.

A formation of single-seater fighters found a number of aircraft on the ground at Andover and Worthy Down, and succeeded, at the cost of one casualty, in damaging two Blue machines. On the return journey, they encountered some of the heavy bombers returning from the daylight raid on Cranwell, mentioned in Communiqué No. 11, and in the ensuing fight brought down two of them with the loss of one machine. The last daylight operation was a raid by day-bombers on Andover. Only a few aircraft were on the ground at the time of the raid. Two were damaged.

With darkness, intense activity was displayed by both sides. Forty-six separate raids were undertaken, 24 by Blue and 22 by Red. Blue concentrated their first efforts against Cranwell, no less than eight separate raids being carried out in close succession. Red fighters, however, succeeded in each case in locating the raiders and engaging them. The results of this fighting are not yet known.

Later, attacks were made on the aerodromes at Bicester, Upper Heyford, Biggin Hill, Kenley and Northolt. At Northolt, two out of the three attackers were engaged by fighters sent up against them.

Red night bombers were also active, and carried out a succession of raids on Upavon, Andover, Lympne, Manston and Tangmere.

The weather was almost ideal for these operations—clear sky, good visibility, and decreasing wind.

At 03.00 hours the following message was despatched to the Commanders of Red and Blue Forces:—"A proposal by the League of Nations to settle the dispute between Redland and Blueland has been accepted by both. In consequence, the two countries have agreed to terminate hostilities at 03.30 hours, 15th August, 1930."

The High Commissioners of Red and Blue Colonies accordingly issued instructions that all hostilities should cease from that hour, and that aircraft should return to their Stations.

Final Press Communiqué. Aug. 15, 1930.

It will be impossible for some time to reach any useful conclusion on the results of the recent exercises. Before considered views can be formed, the whole of the Umpires', Recording Officers', Camera Obscura and Range Officers' reports must be carefully scrutinised, and the Directing Staff must reach decisions as to the co-ordinated value of all combats and bombing operations. The time factor in exercises of this nature is of vital importance, since an apparently successful combat may, due to earlier operations by the same aircraft, be ruled as unsuccessful, or as not having taken place.

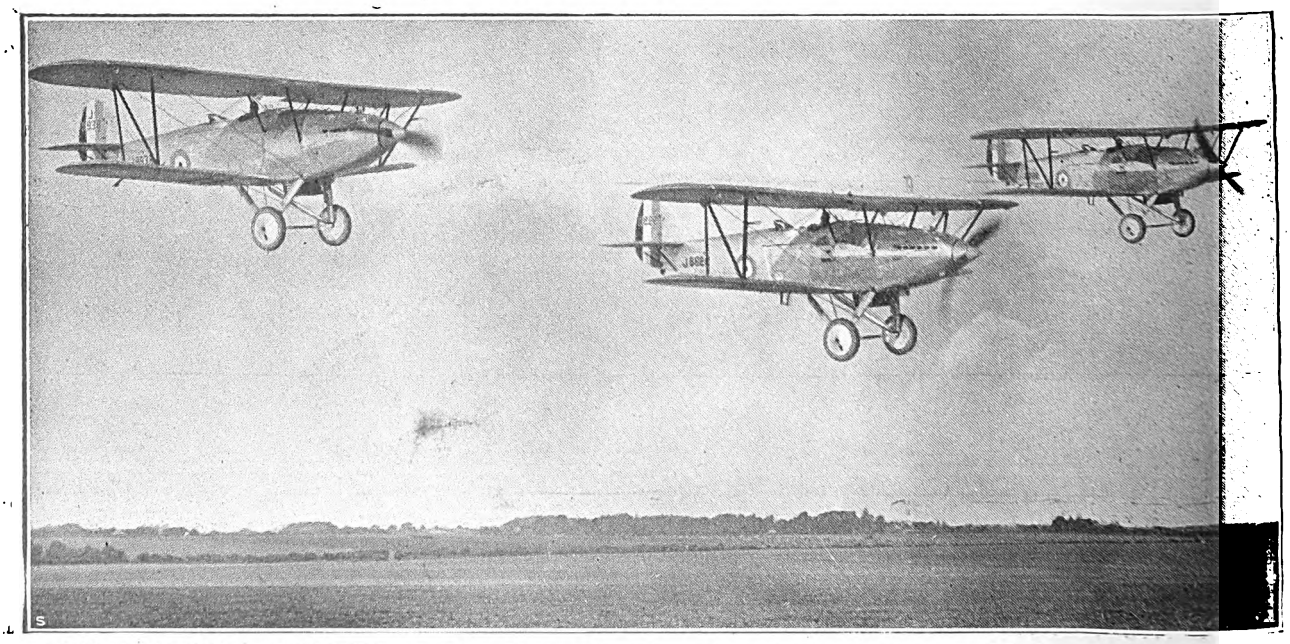
The atmosphere of profound secrecy with which the Air Exercises of 1930 were surrounded makes any sort of deductions difficult. Add to this the fact that the Press *communiqués* were based on the idea that no advantage must be given to one side or the other, but be balanced equally between the two by the Narrative Staff, and the problem of drawing any intelligent conclusions is almost impossible.

One of the outstanding operations was the raid on Catterick by No. 7 (Bomber) Squadron which started in daylight and lasted ten hours. This successful raid had its counterparts during the War 1914-18, and part of its success seems to have depended on the fact that no adequate provision was made by the Red Air Force for the defence of the Sealand Pass.

The success or failure of our newest interceptor fighters which were stationed on the frontier (Hornchurch) has yet to be assessed. The destruction of bombers in the Chelmsford Pass should have been very high. The other fighters did good work, but their range is too short and their rate of climb too slow to make them an efficient safeguard against high-speed day bombers.

Night bombers seemed to have little difficulty in reaching their objectives but the chances were all against their getting away again. An improved automatic control system might lead to interesting developments in this direction. The provision of big transport machines for bringing ammunition, supplies and stores from the base to the forward aerodromes would be interesting in future Exercises but their operations would have to be covered by fighters. A number of thoughtful people in the R.A.F. spoke of the need for high-speed two-seater fighters.

So bloodless was this War that the Air Forces of Redland and Blueland were entirely without provision for medical services. Will all our future enemies calculate their gains and losses in man-hours? *Si vis pacem para bellum.*



THE PHANTOM SQUADRON.—Hawker Harts (Rolls-Royce F.) of No. 33 (Bomber) Squadron over Andover. This Squadron operated from a different aerodrome every day of the Air Exercises.—(*"Aeroplane" photographs.*)

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THE ROYAL AIR FORCE.

The London Gazette.

Air Ministry, Aug. 15.

ROYAL AIR FORCE.

GENERAL DUTIES BRANCH.—Plt. Off. on probation W. F. Pharazyn, R.A.F.O. (S.R.), is granted a S.S. comn. as a Plt. Off. on probation with effect from and with seniority of July 28. Lt. T. H. Villiers, R.N., is reattached to the R.A.F. as a Flg. Off. with effect from Aug. 1, and with seniority of Jan. 12, 1925.

Flg. Off. J. D. Rutherford is placed on the half-pay list, scale B, Feb. 22 to 26 inclusive.

Flg. Off. G. H. W. Selby-Lowndes is transferred to the Reserve, Class A (July 14).

Flg. Off. K. C. Garvie relinquishes his S.S. comn. on completion of service (July 19).

Plt. Off. on probation G. M. Easton relinquishes his S.S. comn. on account of ill-health (Aug. 12). The S.S. comns. of the undermentioned Plt. Offs. on probation are terminated on cessation of duty (Aug. 11):—D. L. McAllister, P. E. L. A. Myers.

Flt. Lt. C. H. Schofield (Lt., Welch Regt.) relinquishes his temp. comn. on return to Army duty (July 26). (Substituted for the notification in the *Gazette* of July 29). The notification in the *Gazette* of July 29 concerning Flg. Off. G. V. T. Thomson is cancelled.

STORES BRANCH.—The undermentioned Flg. Offs. are transferred to the Reserve, Class B. (Aug. 10):—Leonard Francis Caunter, Cyrus Percival Marshall, Edward John Fishenden.

MEDICAL BRANCH.—John Frederick Stewart Wiseman, M.B., Ch.B., is granted a S.S. comn. as a Flg. Off. for three years on the Active List with effect from and with seniority of July 23.

Sq. Ldr. Thomas Keen Place, L.D.S. (Major, Army Dental Corps), relinquishes his temp. comn. on ceasing to be employed with the R.A.F. (Aug. 7).

RESERVE OF AIR FORCE OFFICERS.

GENERAL DUTIES BRANCH.—Plt. Off. William Herbert Bigg is promoted to the rank of Flg. Off. (July 22). The undermentioned Plt. Offs. on probation are confirmed in rank:—

CLASS AA (ii).—Gilbert Bernard Rahr (July 29); Trevor Gwyn Emmerson Price (Aug. 1); Giles Philip Eliot Howard (Aug. 7); Howson Charles Devitt (Aug. 8).

SPECIAL RESERVE.—The Hon. Francis Alexander Innys Eveleigh de Moleyns (Jan. 21); Joseph Blake Rowley Brooke (April 6).

Plt. Off. William Thomson Taylor is transferred from Class AA (ii) to Class O (July 25); Plt. Off. on probation William Forster Pharazyn relinquishes his comn. in the Special Reserve on appointment to a S.S. comn. in the R.A.F. (July 28).

The undermentioned Flg. Offs. relinquish their comns. on completion of service:—William Francis Warner (June 20); William Nugent Sherlock (July 21). Flg. Off. Reginald Sheridan Carroll, A.F.C., relinquishes his comn. on completion of service and is granted permission to retain the rank of Flt. Lt. (June 27). Flg. Off. George Charles Lugg relinquishes his comn. on account of ill-health (Aug. 13).

MEDICAL BRANCH.—Flt. Lt. James Prendergast, M.B., B.A., relinquishes his comn. on completion of service (May 15).

AUXILIARY AIR FORCE.

GENERAL DUTIES BRANCH.—No. 600 (CITY OF LONDON) (BOMBER) SQUADRON.—The undermentioned to be Plt. Off.:—G. H. Compton (July 26). The undermentioned Plt. Offs. to be Flg. Offs.:—G. C. Bonner (Dec. 1, 1929); J. C. Larking (April 12). Flg. Off. E. A. Burton relinquishes his comn. on account of ill-health (Aug. 13).

Appointments.

Week ending August 18.

GENERAL DUTIES BRANCH.—Group Captain G. I. Carmichael, D.S.O., A.F.C., to R.A.F. Depot, Uxbridge, on transfer to Home Establishment, 1/8.

Squadron Leader A. S. Ellerton, O.B.E., to H.Q., Wessex Bombing Area, Andover, 5/8.

Flight Lieutenants R. A. R. Mangles, to H.M.S. *Courageous*, 12/8. R. E. Bain, to No. 27 Sqdn., India, 9/7. W. C. P. Bullock, to No. 36 Sqdn., Donibristle, 1/8. R. A. P. Roberts, to No. 20 Sqdn., India, 3/7. R. B. Sutherland, D.F.C., to H.Q., Wessex Bombing Area, Andover, 13/8. G. M. E. Shaw, to No. 2 F.T.S., Digby, 5/8.

Flying Officers D. F. W. Atcherley, W. F. Tope, G. F. Macpherson and J. W. Homer, all to R.A.F. College, Cranwell, 5/8. I. B. Beesley, W. J. Crisham and R. F. A. W. Williams, all to No. 2 F.T.S., Digby, 5/8. L. V. Bennett, S. O. Bufton, O. I. Gilson, J. S. Pole and N. H. Snelling, all to No. 5 F.T.S., Sealand, 5/8. E. D. Elliott, to R.A.F. Training Base, Leuchars, 5/8. D. J. Harrison, to H.M.S. *Courageous*, 12/8. N. F. V. Henkel, to Home Aircraft Depot, Henlow, 7/8. D. J. Hughes-Morgan, to No. 33 Sqdn., Eastchurch, 27/6. A. M. N. David, to R.A.F. Base, Gosport, 12/8. H. A. Fenton, to No. 5 Sqdn., India, 7/8.

Pilot Officers R. C. Mead, to No. 31 Sqdn., India, 7/8. J. S. Douglas, to No. 20 Sqdn., India, 7/8. M. S. Thompson, to No. 3 F.T.S., Grantham, 5/8. W. C. Sheen and D. D. Christie, both to No. 3 F.T.S., Grantham, 5/8. The undermentioned are all posted to R.A.F. Depot, Uxbridge, on appointment to S.S. commissions with effect from 12/8: E. C. Bates, G. S. Coleman, R. W. H. Harrison, C. E. Spencer, H. O. Woodhouse.

STORES BRANCH.—Flight Lieutenant C. W. Rugg, to School of Army Co-operation, Old Sarum, 6/8.

Flying Officer C. B. Horsfield, to R.A.F. Reception Depot, West Drayton, 1/8.

MEDICAL BRANCH.—Flying Officer E. W. B. Griffiths, to Medical Training Depot, Halton, on appointment to a S.S. commission, 5/8.

The Higher Command.

The Air Ministry announces the following appointment:—Air Vice-Marshal Hugh Caswall Tremenheere Dowding, C.B., C.M.G., now Air Officer Commanding, Fighting Area, Air Defence of Great Britain, to be a member of the Air Council (Air Member for Supply and Research) with effect from Sept. 1, 1930, in place of Air Marshal Sir John Frederick Andrews Higgins, K.C.B., K.B.E., D.S.O., A.F.C., who has been placed on the retired list at his own request.

An account of the Service career of Air Vice-Marshal Dowding appeared in THE AEROPLANE of Jan. 9, 1929.

Fatal Accidents.

The Air Ministry regrets to announce that as the result of an accident at Falmer, near Lewes, to a Siskin machine of No. 25 (Fighter) Squadron, Hawkinge, on Aug. 8, No. 364199 Sjt. Owen Herbert McNair, the pilot and sole occupant of the aircraft, was killed.

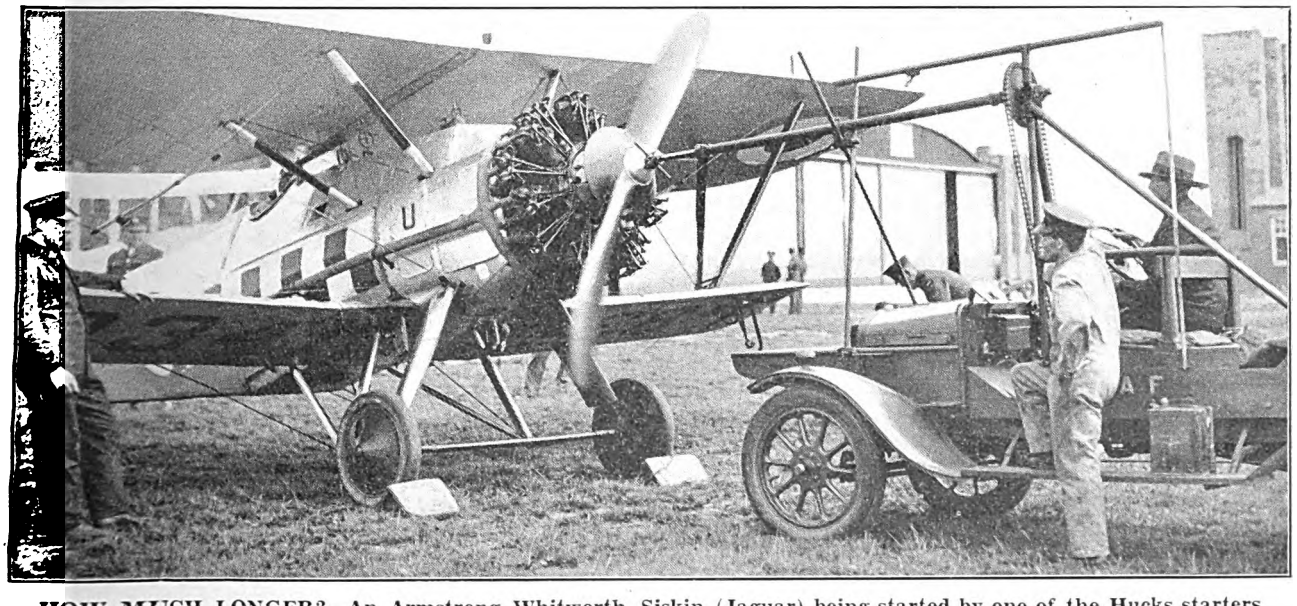
The Air Ministry regrets to announce that as the result of an accident at Abu Sueir, Egypt, to a D.H.9A machine of No. 4 F.T.S., Abu Sueir, on Aug. 15, Flg. Off. Eric Tennant Kingsford, R.A.F. (Lieut. The Prince of Wales's Volunteers), the pilot and sole occupant of the aircraft, was killed.

Permanent and Medium Service Commissions.

The following officers have been selected by the Air Council for Permanent or Medium Service Commissions as indicated subject to physical fitness.

Permanent Commissions.—Flt. Lt. F. W. Wiseman-Clarke, Flg. Offs. R. J. Legg and L. R. Stokes.

Medium Service Commissions.—Flt. Lts. A. L. R. Duke, E. V. Major,



HOW MUCH LONGER?—An Armstrong Whitworth Siskin (Jaguar) being started by one of the Hucks starters which are standard equipment of the R.A.F., though more efficient countries have been using Inertia Starters for years.

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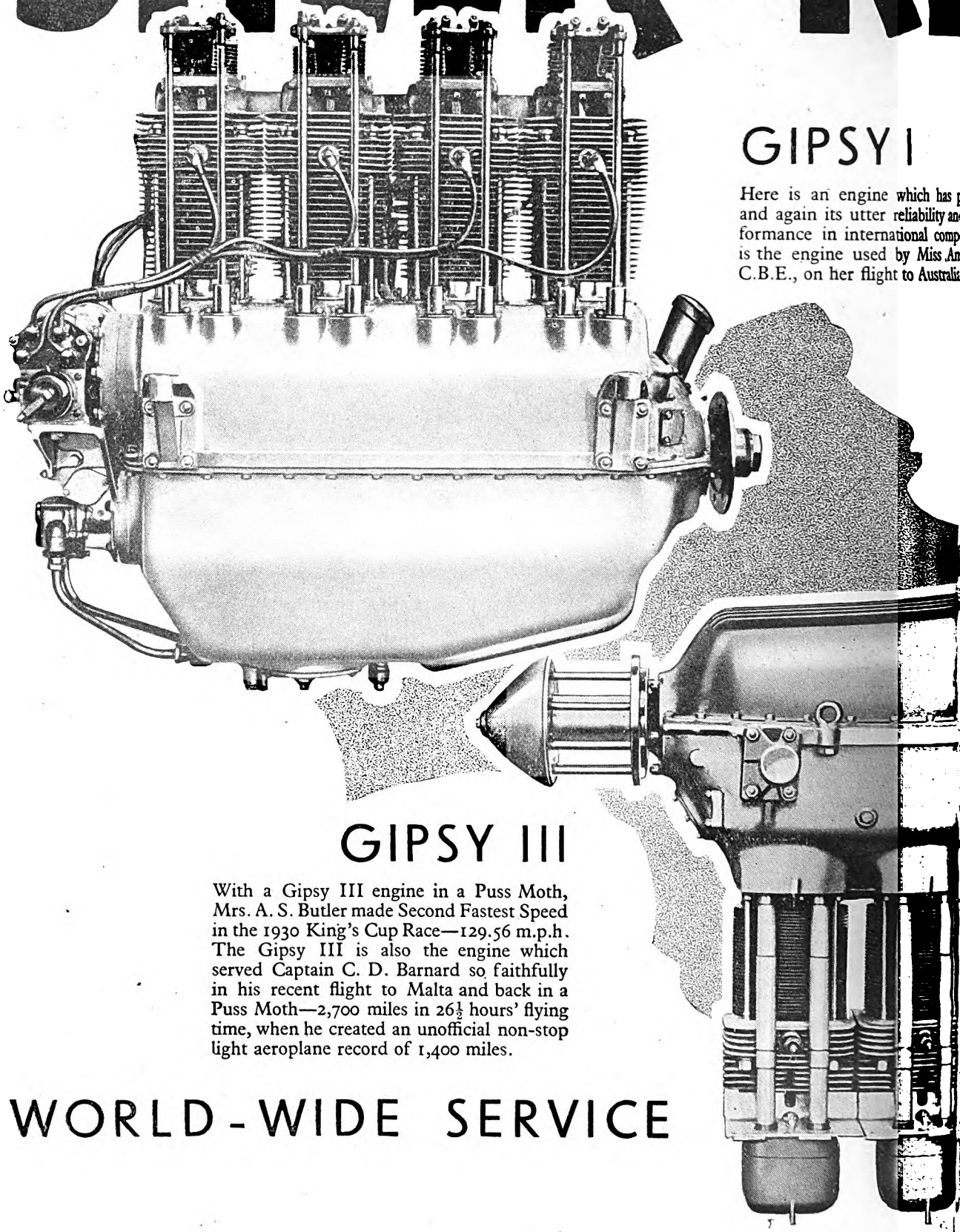
SHEER RE



GIPSY I

Here is an engine which has p
and again its utter reliability an
formance in international comp
is the engine used by Miss An
C.B.E., on her flight to Australia

GIPSY III

With a Gipsy III engine in a Puss Moth, Mrs. A. S. Butler made Second Fastest Speed in the 1930 King's Cup Race—129.56 m.p.h. The Gipsy III is also the engine which served Captain C. D. Barnard so faithfully in his recent flight to Malta and back in a Puss Moth—2,700 miles in 26½ hours' flying time, when he created an unofficial non-stop light aeroplane record of 1,400 miles.

WORLD-WIDE SERVICE

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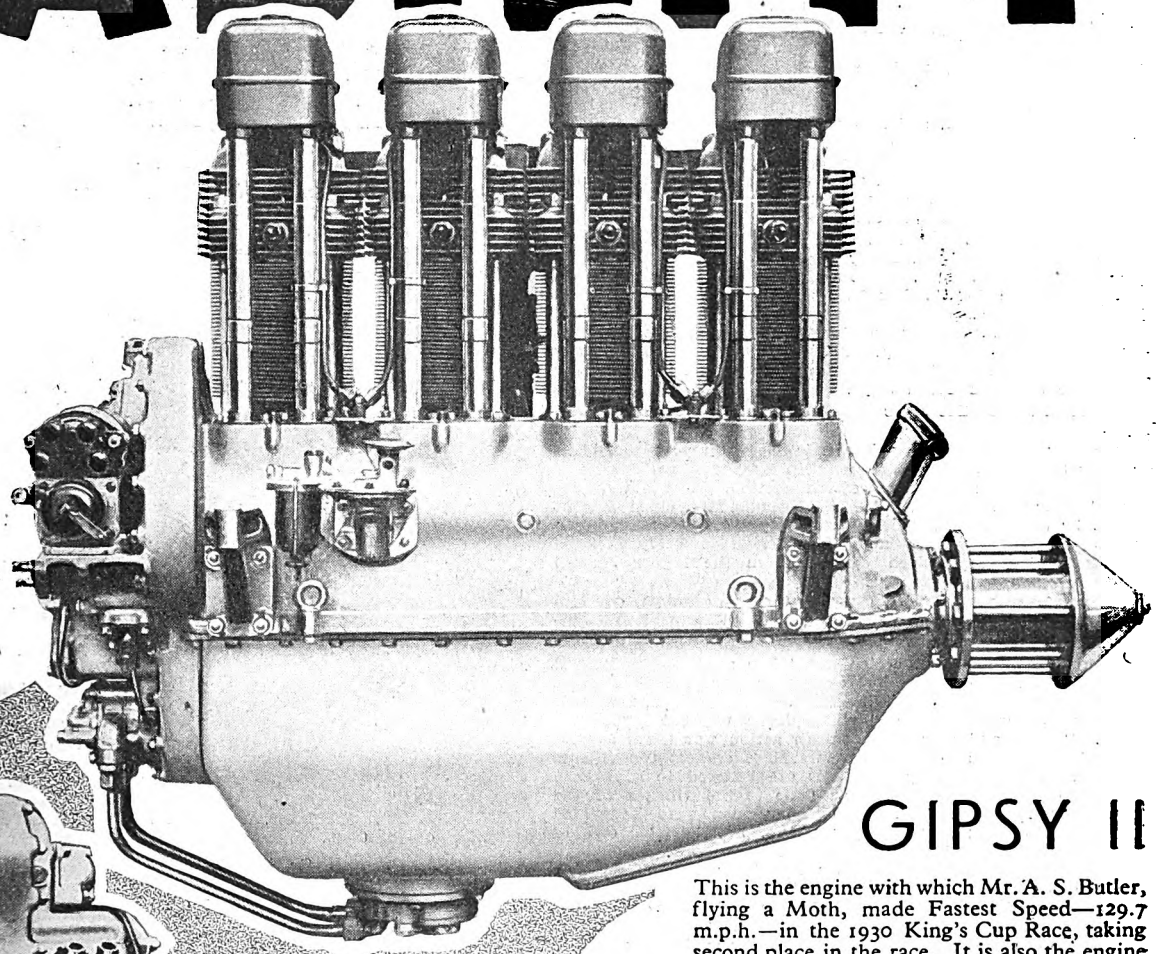
LIABILITY



GIPSY II

This is the engine with which Mr. A. S. Butler, flying a Moth, made Fastest Speed—129.7 m.p.h.—in the 1930 King's Cup Race, taking second place in the race. It is also the engine used by Miss Winifred Spooner in her Moth with which she won Category I (for heavier light aircraft) in the 1930 Challenge International de Tourisme 4,700 miles European circuit. In the same competition Captain H. S. Broad was the only competitor to gain full marks for Speed and Reliability — his engine was a Gipsy II in a Moth.

GIPSY

THE DE HAVILLAND AIRCRAFT CO. LTD.

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C. W. McK. Thompson (Aug. 14, 1930), H. F. Jenkins (Oct. 26, 1930).

Flg. Offs. L. C. Barling (Sept. 12, 1930), W. L. Bateman (Jan. 16, 1931), N. R. Buckle (Jan. 6, 1931), A. M. N. David (Sept. 12, 1930), G. H. Godwin (Jan. 6, 1931), S. H. C. Gray (Jan. 23, 1931), W. F. Lovering (Sept. 12, 1930), C. R. Mason (Sept. 14, 1930), G. L. G. Richmond (Sept. 26, 1930), G. V. T. Thomson (July 27, 1930), W. G. Wooliams (Nov. 28, 1930).

Full Dress Regulations.

An Air Ministry Order states that Officers attending Levées or similar ceremonies in full dress will in future carry the sword in the left hand (i.e., not hooked up).

The Afridi Invasion.

The Times correspondent in Simla in a message dated Aug. 12 states:—

The latest authentic reports of the Afridi invasion are favourable, and suggest the early collapse of the movement. To-day's report is that the few hundreds who reached the plain last week-end have had enough of their venture, and are seeking homeward paths through the country of their kinsmen in the tribal territory known as the "Kohat Salient." The devastating bombing of the marauders' villages by the Royal Air Force has proved effective, and the reconnaissances of the military forces about Peshawar have shown the raiders that the British Raj is not yet overthrown.

The message also states:—,

The Tirah tribe of Massozai, a day or two ago, attacked Badama Post, held by Kurram Militia, about eight miles from Parachinar. Their repulse by the Militia has been followed by punitive aerial bombing of their villages. Aeroplanes have taken English women and children away from Parachinar to Kohat for safety, but there is reason to hope that the prompt precautions taken by the authorities and the latest news from Afridi sources have damped filibustering ardours on the southern Tirah slope.

A further *Times* message from Simla dated Aug. 14 states:—

From the Kurram Valley complete quietude is reported, and it would appear that the vigorous action taken by the Royal Air Force against the Massozais and other western sections of the Orakzais has damped their zeal for mischief. The threatened Orakzai descent upon Kohat by the Khanki and Miranzai valleys has not taken place so far; indeed, there has been no outward sign of it since aerial bombing scattered the clansmen coming down the higher Khanki Valley with banners two days ago.

The Government of India's weekly appreciation of the situation, published on Aug. 16, contains the following paragraphs:—

On the Kurram border overt action was taken against Government by another Orakzai section, the Massozai, with their neighbours, the Para Chamkannis, who made an attack on militia posts and villages in the Kurram Valley. Militia and village levies engaged them with good spirit. Prompt and very successful air action was taken against the hostile formations, and, after due warning, against the villages from which they came. Heavy casualties are believed to have been inflicted, and considerable damage was done to the villages of the more prominent hostile leaders. European women were evacuated from Parachinar as a precautionary measure, but by the end of the week all was comparatively quiet again.

This prompt and heavy punishment undoubtedly had a sobering effect on the tribes concerned, and probably did much to restrain the enthusiasm of the Tirah Orakzai. By the end of the week the number of Afridis remaining in Peshawar District had greatly decreased, and so also had the main body of the *lashkar* in the vicinity of the Kajuri Plain. The situation, however, continues to be one of considerable gravity and danger.

To the south of Peshawar District the attitude of the Pass Afridis remains satisfactory, though constant efforts are being made by Tirah Afridis to enlist their co-operation. The Hassan Khel and the Asho Khel are less reliable. Some of them are already known to have joined the Afridi hostiles in the District, and they are in a position to make trouble in the Nowshera area if opportunity offers. To meet this situation special measures were found necessary, and Martial Law has been proclaimed in Peshawar District by Ordinance promulgated on the evening of Aug. 15.

[If we had a real Government we should simply withdraw all Imperial troops from the North-West Frontier and let the Pathans loose in the Ganges Valley. The Pathans would have a wonderful time and they would teach the Indians and their babu and communist leaders a lesson (on our behalf) which would last them for a century. There are so few Pathans, all put together, that after giving them six months of glorious looting they could be rolled back to the Hills by a brigade or so of British troops. Or perhaps, using the Pathan sense of humour as a lever, the whole thing could be arranged by our political officers on the Frontier without any cost to us either in money or blood. The point that people in this country always miss is that the Pathans have no particular dislike of the English, rather otherwise, but they do want to loot India. So why should we stand as a barrier to be shot by Pathans on one side and stoned and clubbed by Indians on the other?—

C. G. G.]

Accommodation of Civil Aircraft at Service Aerodromes.

A recent Air Ministry Order revises the charges to be made for the accommodation of civil aircraft at Service aerodromes and seaplane stations. The landing and housing fees are classified according to the size of the machine and vary from a landing fee of 1s. for a type occupying less than 500 ft. of floor space to a landing fee of 15s. for a large type occupying over 3,600 square feet and with more than two engines. The housing fees for the former are 1s. up to 8 hours and 2s. 6d. up to 24 hours and for the latter £1 10s. up to 8 hours or 24 hours. The cost of using over 3,600 square feet of R.A.F. accommodation inclusive of landing fees for one month is £45.

Where the pilot has signed the form of agreement the aircraft will be detained in the event of non-payment. Petrol and oil will be charged at full commercial prices. No repair work will be undertaken at a unit without prior Air Ministry authority unless the inclusive estimates cost is under £10.

Full details of the procedure necessary before any repairs can be undertaken are stated in this order, and the amount of work involved for the R.A.F. *personnel* concerned tends to suggest that civil pilots landing at Service aerodromes for repairs will meet with a cool reception.

The Medical Branch.

The following officers of the Medical Branch holding Short Service Commissions have been accepted for Permanent Commissions subject to physical fitness:—

Flight Lieutenants G. M. Anderson, M.B., Ch.B., S. B. S. Smith, L.M.S.S.A., P. B. L. Potter, M.B., Ch.B., R. E. Alderson, M.B., B.S.

Flying Officers G. W. Paton, M.B., Ch.B., N. M. Jerram, M.R.C.S., L.R.C.P., G. O. Williams, M.R.C.S., L.R.C.P., A. E. Vawser, L.M.S.S.A., P. J. McNally, M.B., Ch.B.

The Inter-Services Lawn Tennis Championships.

The Inter-Services Lawn Tennis Championships were played at Wimbledon on Aug. 4 and 5. The weather prevented three matches from being played. The Army won the Championship again with 10 matches. The Navy won 5 and the R.A.F. nil. The results were as follows:—

Capt. H. S. Lewis Barclay (Army) beat Cdr. P. F. Glover (R.N.) (2—6, 6—4, 10—8); beat Wing Cdr. H. J. F. Hunter (R.A.F.) (3—6, 6—0, 6—2).

Capt. J. H. Frowen (Army) beat Lt. H. F. G. Evered (R.N.) (3—6, 6—3, 6—1); beat Wing Cdr. R. E. Saul (R.A.F.) (6—0, 6—2).

Lt. G. O. Jameson (Army) beat Lt. A. W. Buzzard (R.N.) (6—0, 6—1); beat Flg. Off. J. W. Hale (R.A.F.) (7—5, 6—4). Glover (R.N.) beat Hunter (R.A.F.) (6—3, 6—3). Evered (R.N.) beat Saul (R.A.F.) (3—6, 8—6, 6—2). Buzzard (R.N.) beat Hale (R.A.F.) (6—3, 6—2).

Capt. H. S. Lewis Barclay and Capt. J. H. Frowen (Army) beat Cdr. P. F. Glover and Lt. H. F. G. Evered (R.N.) (1—6, 6—3, 6—3); beat Wing Cdr. H. J. F. Hunter and Wing Cdr. R. E. Saul (R.A.F.) (5—7, 7—5, 6—3).

Maj. D. M. Evans and Capt. P. R. Broadway (Army) beat Cdr. H. A. Packer and Cdr. B. A. W. Warburton-Lee (R.N.) (6—4, 6—4).

Lt. D. Russell Roberts and Sec. Lt. C. R. D. Tucker (Army) beat Paymaster Cdr. R. E. Worthington and Lt. A. W. Buzzard (R.N.) (6—1, 7—9, 6—3).

Packer and Warburton-Lee (R.N.) beat Flg. Off. J. W. Hale and Flg. Off. R. E. Hall (R.A.F.) (8—6, 6—4). Worthington and Buzzard (R.N.) beat Plt. Off. H. D. Nicholson and Flg. Off. F. G. Downing (R.A.F.) (6—2, 6—0).

Saying It with Song.

[*Halton Songs*, published by the Halton Debating Society, price 2s. 6d. net.] The problem of reviewing music in an aeronautical newspaper is not an easy one. The only member of the Staff competent to play the music in this book has declared herself incompetent to write a review of anything. The following comments have therefore been extracted from her in an interview:

Aircraft Apprentices' March—Excellent words, spirited tune, good rhythm.

Halton Anthem—If the remaining 49 verses are in a similarly happy vein Halton must be a cheery spot.

Wing Songs—I prefer the jolly tune of No. 1 Wing Song but the combative spirit of all three appeals to my Irish blood! There's a "Would yez tread on the tail o' me coat?" air about these songs which ought to "Stiffen the sinews—summon up the blood,"—Henry V before Harfleur in case you don't know.

A Fairy Tale—The words of this song are not only amusing but gently satirical. Let all prigs beware.

Congratulations to the lyric-writer who has achieved many delightfully original lines and neat phrases. The composer of most of the music has caught the spirit of the words very well and most of the songs and marches are gay and snappy. I should like to hear them played by the Halton Band.

THE AUSTRALIAN CATERPILLAR.

The story of the Australian Caterpillar which was mentioned in THE AEROPLANE on May 21 is as follows:—

Pilot Officer William Gordon Rae of the Royal Australian Air Force was practising aerobatics in a standard single-seat fighter at the Point Cook Base on May 15, and was attempting to do an outside loop at a height of about 4,000 feet, when the wing broke. The machine went into a spin and Mr. Rae unfastened his safety belt, climbed out of the cockpit and dived. His Irvin parachute opened immediately and he landed safely in a ploughed field.

Mr. Gordon Rae is the first member of the Royal Australian Air Force to save his life with a parachute. The Irvin parachute is standard equipment in the Royal Australian Air Force.

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THE HOMECOMING OF R.100.

On Saturday, Aug. 16, R.100 returned to Cardington after her voyage from Canada. Reports of her progress had been somewhat indefinite during the previous night, as she was said, at one time, to have a good chance of beating the West-to-East record of the *Graf Zeppelin*, but this hope disappeared during the unfavourable weather of the last hours.

The airship slipped moorings at 21.30 p.m. (local time) on Aug. 13 from the St. Hubert tower. She flew over Montreal and then followed the St. Lawrence to Quebec, which she reached at 23.45 p.m. Only three engines were needed to make a ground speed of 75 m.p.h. in the following wind.

At 02.05 a.m. on Aug. 14 the airship passed Father Point, and Belle Isle came abeam about noon. A depression moving up from the South-West brought a strong head wind in the afternoon and the R.100's course was changed to reach the favouring breezes south of the depression.

On Aug. 15 the passage through the depression brought the airship into low clouds and heavy rain. About seven tons of rain-water were collected for ballast, and an unspecified quantity found entrance by unauthorised means. Owing to the leakage of considerable rain into the ship through defective fabric, the electric cooker was put out of action, and everybody had to live on cold food the rest of the way.

On Aug. 16 the Fastnets were sighted at 03.00 hours (G.M.T.), and at 10.35 hours the main wire was dropped at Cardington.

The voyage had taken 57 hours 5 minutes, and 3,200 gallons of fuel remained, or about a third of the supply. [Considering that she had only three engines working out of six nearly all the way, the margin seems insufficient, especially when one considers that when she arrived at Montreal she only had petrol left for 5½ hrs. full-speed running, although she had never been run at full speed on the way.—C. G. G.]

The Arrival.

The crowd at Cardington on Saturday morning was rather meagre at 08.30 hours although some had been there all night. Air Ministry estimates had settled on that hour as the earliest possible, and so reported to those who had the persistence to telephone at intervals throughout the night. Special preference was given at the mooring tower to the "wives and sweethearts" of the crew, and someone remarked that such an enterprising band ought to be awaited by larger numbers.

After the appearance of the airship at 10.45 hours (Summer Time) the attendance rapidly grew, and the general public rapidly outnumbered those bearing discs of official admission. The craft circled over Bedford and made a wide circuit South-East, so as to nose into wind towards the mast at a distance of two or three miles. Half an hour elapsed before her stealthy approach allowed the ground crew to attach the main wire to the cable from the mast, and the steam winch worked steadily for another half hour before the nose of the R.100 clicked into the cup, amid cheers.

Lord Thomson, Secretary of State for Air, waited at the masthead to welcome Wing Commander Colmore, Major G. H. Scott and Sir Dennistoun Burney as they disembarked.

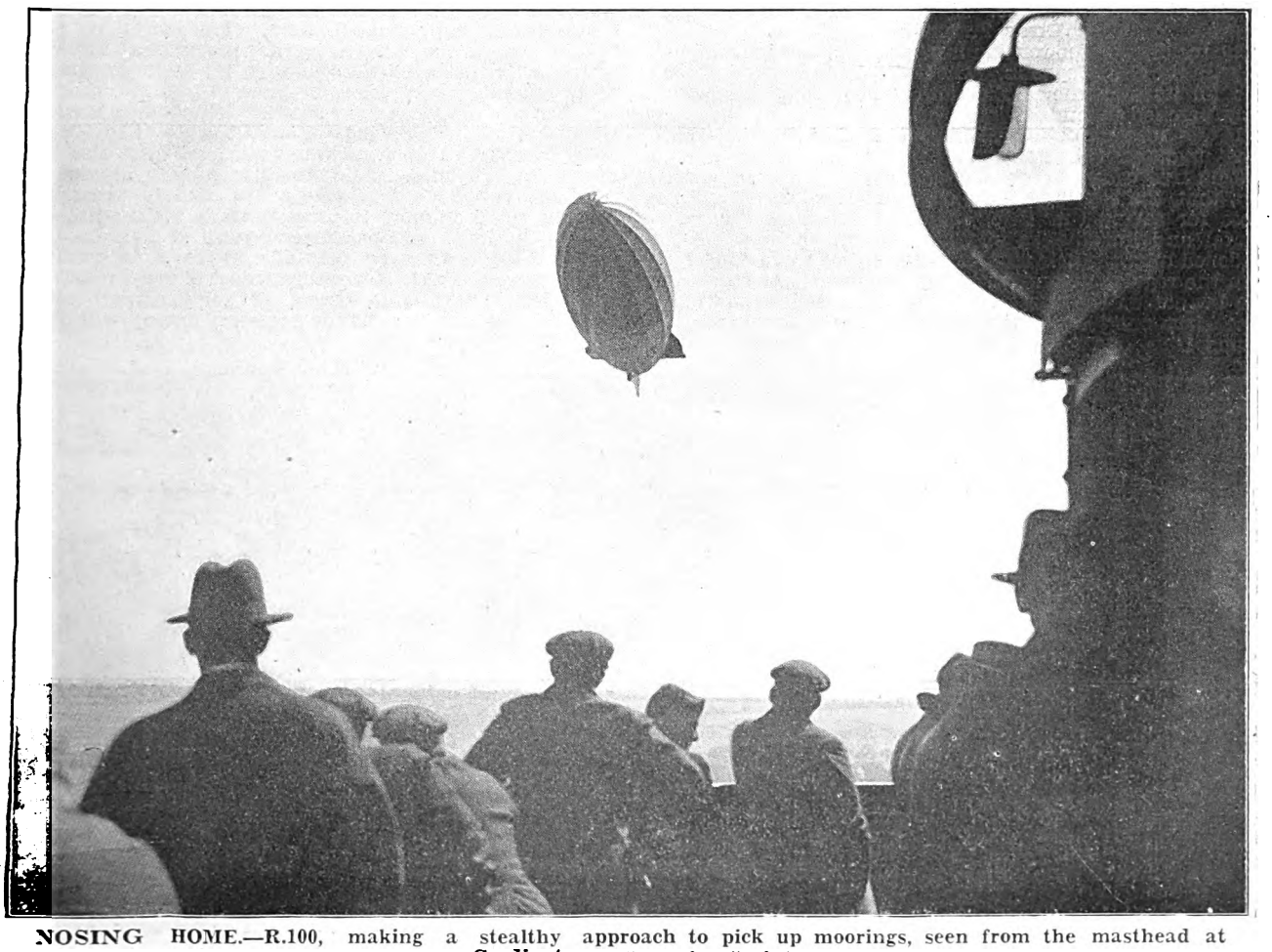
At the foot of the tower the officers, crew and passengers were cheered as they came down by the lift, in batches, or walked down the stairway calling for a smoke. Most of the sweethearts and several of the wives had cigarettes already lighted and were dutifully keeping them so.

Popular interest centred about the crew, who were subjected to motile and static picturisation, individually and collectively, with and without sound. Technicians were more interested in the patched port fin and the one airscrew which had made the journey without a single revolution.

The patch on the fin was noticeable, but seemed a most workmanlike job. The crew waxed enthusiastic in their accounts of how Canadian Vickers Ltd. produced a panel of fabric, 20 ft. x 40 ft., which involved considerable work, in less than 24 hours and helped nobly to get it in place after the jury-repair had been cleared away. The earlier repair was made in about two hours, while the engines were slowed down to permit an aeronautical type of "collision mat" to be drawn over the outside of the hole.

The buffeting of the storm which the airship met one day before reaching Montreal made several small rents in the fabric, besides the large one, and rumour says that a new and heavier cover will be put on before the airship re-emerges from the shed into which it was put a few hours after reaching Cardington.

The affair of the damaged engine was not so well handled. When trouble with its reduction gear on the Ottawa trip definitely crippled the forward engine in the starboard car, gondola, or power-egg—whichever you like to call it—the new engine which had been sent on ahead from Cardington should have been fitted. But the crane which had, with



NOSING HOME.—R.100, making a stealthy approach to pick up moorings, seen from the masthead at **Cardington.**—(*"Aeroplane" photograph.*)

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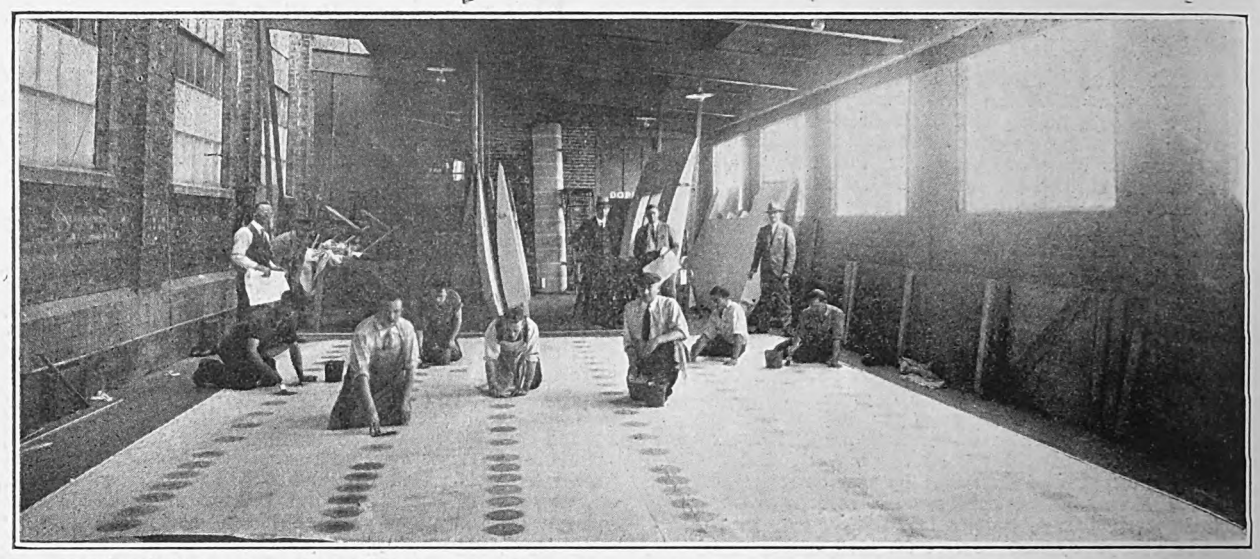


FAST WORK.—Canadian Vickers Ltd. doing a speedy job on the repair panel of R.100's damaged fin.

due forethought, been specially designed to be attached to any gondola so that the engines could be changed while at the mast had not been sent with it.

Enquiry revealed an excess of paternal solicitude on the part of the Air Ministry. The said crane does its job quite well provided the cam-gear cover is first removed from the engine which is going in or out. Otherwise the overall dimensions are just an inch or two more than will pass the available passage. The removal of this cover and/or its replacement without the official blessing of the A.I.D. makes the engine unairworthy, so the crane would have constituted a temptation to dispense with proper authority and sacrosanct formalities. As a matter of fact the exceedingly competent crew of the ship were quite capable of taking a complete engine nefariously apart and assembling it piecemeal in the gondola, had time allowed. But the Authorities frown upon such lawless feats, and sent them no crane, whereupon the R.100 flew home on five engines to show the World how British aircraft and passengers are kept sternly safe in spite of their crews.

Dizzy Patchwork.

The incident of the torn fin is curious in its exact comparison with the *Graf Zeppelin*. The heroic remedy was the same with all its awesome implication of men working precariously perched in mid-air, and the final repair at the mast itself was actually no less dangerous. In fact the wind conditions might easily be worse at the mast than on an airship floating free with scarcely steerage way. The first impression, that these gallant souls ought to have the Air Force Cross for saving the ship, merely emphasises the sentimental and imaginative effect of air travel even on our hardened minds. Their task was actually no more dangerous than the regular work of ordinary seamen in windjammers, who lay out on the tops'l yards and work their sails in real Cape Horn snorters. The realisation that a drop onto the ground from one or two thousand feet, is not necessarily more fatal or uncomfortable than a seventy-foot plunge onto a deck or into an antarctic sea need not lessen the well-merited admiration accorded to the crew of R.100.

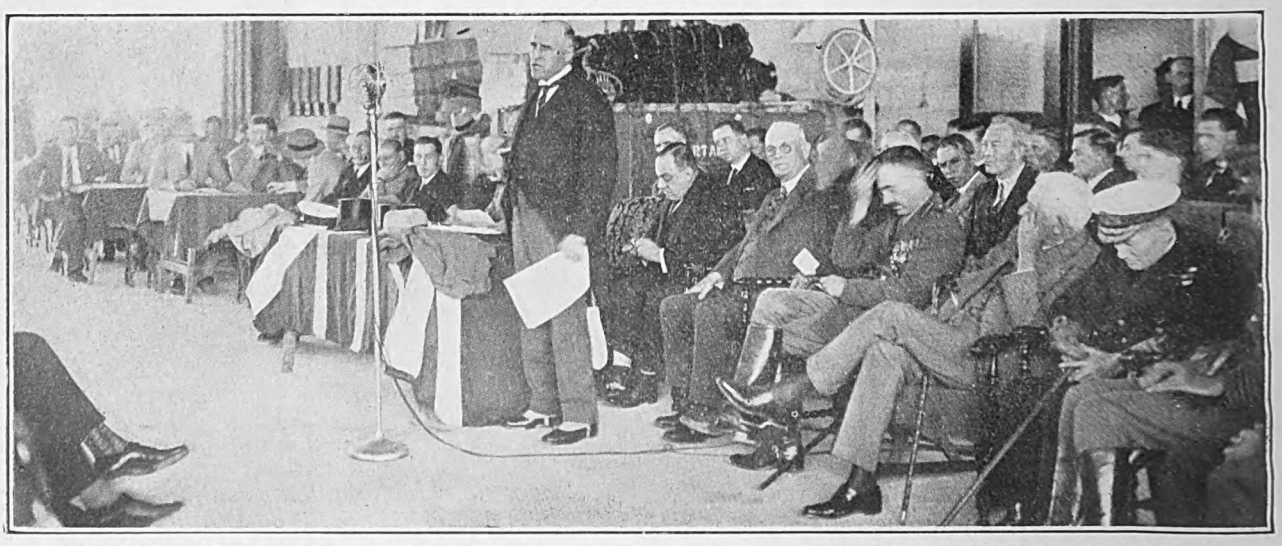
The excitements of the journey seem not to have affected the general impression of the passengers that airship travel bids fair to be the most comfortable and peaceful of any yet developed.—F. D. B.

While refuelling at the mast at Cardington after arriving the airship had another mishap. Two fuel-tanks subsided onto the main structure and one of them protruded through the envelope. The cause seems to have been that somebody forgot to turn off the tap of the petrol supply-pump, which accordingly pumped petrol into one tank till the ends bulged and broke the fitting (called a spider) which holds the tank to the attachment to the frame of the ship.

Evidently we have still a good deal to learn about the design, construction and management of big airships. But R.100 has put up a very fine performance for a ship which is frankly an experiment, and from this voyage her constructors must have learned enough to enable them to build a still better ship in quick time. The buffetting she got from storms on the outward journey proved that Mr. Wallis's system of construction is sound, so let us hope that more work will be done on the same lines.

Reports from Canada say that Sir Dennistoun Burney has made certain interesting propositions to the Canadian Government and to Canadian financiers, with the idea of developing a regular Anglo-Canadian airship service across the Atlantic. Such a scheme seems entirely praiseworthy. Nothing could do more to promote trade within the Empire than a fast mail and passenger service to Canada.

The R.100 has proved that airship travel is comfortable in weather in which steam-ship travel is very much otherwise. Everything is in favour of going ahead with the project. Let us hope that the necessary money will be forthcoming.—C. G. G.



A SOOTHING INFLUENCE.—Col. the Hon. J. L. Ralston, Minister of National Defence in the Canadian Government, pronouncing the official welcome to the crew of R.100. The deeply respectful demeanour of his audience rather suggests a hot afternoon. Behind Col. Ralston may be seen the unmountable spare engine.

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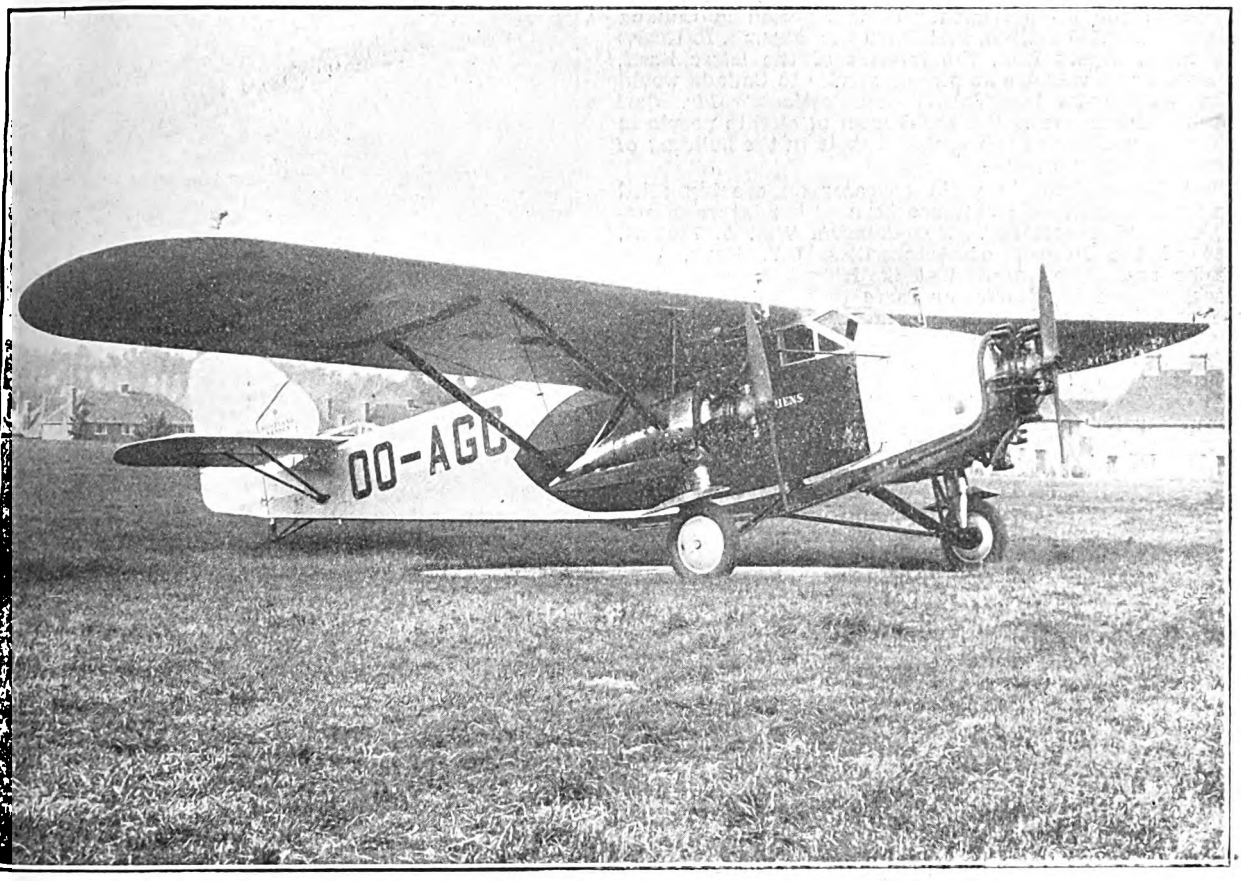

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WAITING FOR THE R.100.

The letter which appears hereafter arrived only a day or two before the R.100 herself. It was posted in Canada the day the R.100 arrived, and R.100 was about a fortnight in Canada. Apart from the interest of the letter itself, this shows how valuable an airship service to Canada would be in speeding-up Imperial Communications. Mr. Carl Fritsche, who is one of the best-known of airship people in the States, and one of the moving spirits in the building of all-metal airships, says:—

What I am about to write concerns an evening filled with that indescribable romance born of a mixture of uncertainty and expectancy. Rear-Admiral Wm. A. Moffett, Chief of the Bureau of Aeronautics, U.S. Navy, Mrs. Fritsche and myself arrived at St. Hubert Airport at six o'clock last evening fearful *en route* that the R.100 might have landed in our absence. The mooring mast was empty. We wondered why, and soon found out that a squall east of Quebec was reported to have ripped some of the fabric covering from the under-side of the horizontal fins, and that the presence of thunder-storms in the upper St. Lawrence valley and particularly around St. Hubert, plus her partially disabled condition, might delay the arrival of the R.100 until midnight or later.

We received a cordial welcome from the Hon. J. A. Wilson, Director of Civil Aviation and his assistant Flight Lieut. F. S. Coghill, who invited us to inspect the mooring-mast. We gladly accepted and were escorted by Group Capt. E. W. Stedman, Chief Aeronautical Engineer and were amazed at the perfection in every detail of the structure. I understand it is similar to the one at Cardington except that all the utilities, crews' quarters, etc., here are housed within the mast structure—very necessary in this climate. The mast certainly is a tribute to the careful planning of Major Scott and his associates. No essential seems to have been overlooked.

Returning to the Administration Building we were presented to Col. J. L. Ralston, Minister of National Defence, Maj.-Gen. A. G. L. McNaughton, Chief of the General Staff, and to his assistant, Brig.-Gen. W. B. M. King, all of whom seemed to be very much concerned over the damaged condition of the R.100, but expressed their faith in the abliity of her crew to bring her safely into port.

Admiral Moffett promptly placed the facilities of the Lakehurst Hangar at the disposal of Sq. Ldr. Booth if it were disclosed that satisfactory repairs could not be made at the mast. Major A. C. Steele, Radio Officer, immediately transmitted this invitation to the airship, along with the forecast by Director of Meteorological Service Patterson that the local storm area was rapidly disappearing, thus promising fair weather conditions for landing.

Major Scott and Sq. Ldr. Booth radioed back that they were approaching St. Hubert at reduced speed and, though they were only a short distance away, they did not plan to land until about dawn. Mooring-Officer Lt. Comdr. A. R. Pressey confirmed this despatch so we all repaired to the airport restaurant for much needed sustenance. In the meantime the clouds passed away, the stars came out and all appeared favourable for a landing at any time.

1.30 a.m. Sighted the silvery form of the R.100 floating slowly over Montreal—a distance of about eight miles from St. Hubert. With white running lights fore and aft, green lights starboard and red to port she seemed part of the heavens herself. Suddenly the air-port searchlight picked her up, revealing her graceful lines, but not any obvious damage to her fins. One could not help but express admiration of the wonderful achievement of her builders and her crew. How happy Scott, Booth, Colmore and Burney must be—particularly Burney who with fine courage had looked forward to this moment for years.

On the ground we were all full of joy. Whistles blew, auto horns honked continuously and the multitude cheered. Mrs. Scott, who has been here for several weeks waiting for the Major to join her danced a jig and asked for a hot ham sandwich—it seemed her appetite had returned.

As this is being written,—3.00 a.m. just before dawn—the roads from Montreal are already jammed with cars laden with sight-seers eager for the landing.

Comdr. C. E. Rosendahl, U.S.N., of *Shenandoah* fame and a "round-the-World-in-the-*Graf-Zeppelin*" passenger is here, also Comdr. Jerome Hunsaker of the Goodyear-Zeppelin Co. Major Hale, Captains Kepner, Flood and Axtater of the U.S. Army Air Corps; Schlosser, Klikoff and others of the Aircraft Development Corporation—builders of the Metalclad Airship — truly it is an international lighter-than-air night.

Some of our airplane friends are rather critical of the delay in landing of the R.100 comment,—"airship time," "late as usual," etc.—but when we pin these fellows down they must admit certain inherent limitations in airplanes which in the light of materials and sources of power now known absolutely prohibit their successful performance commercially in trans-oceanic flight. On the other hand the dirigible increases in efficiency very rapidly with size and offers real promise as a trans-Atlantic commercial carrier. All the airship needs is adequate financial support for development purposes and the ill-informed scoffers will soon be compelled to admit its practical utility.

IMPERIAL UNDERSTANDING. — Lord Thomson, Secretary of State for Air, greeting M. Cartier, a passenger in R.100 and the possible future chief of a Canadian Air Ministry.

Well! Dawn is just breaking and the bugles are calling the ground crew to quarters. The landing is under way, and I do not want to miss it. A thrilling night it has been for all privileged to be here. And to me it is a vision of the near future when Montreal will be a regular port of call for British airships. England, in my humble opinion, needs airships to bind her Empire together. All nations need airships to shorten the line of communications and to promote a better understanding among their peoples. May Burney, Scott, Booth and their associates succeed with their program. Their courageous example is an inspiration to us all.

(Signed) Carl B. Fritsche.

P.S. — Mooring completed 4.30 a.m. Eastern Standard Time.

FUTURE SCHEMES.

Another American correspondent of The Aeroplane who was keenly interested in the arrival of R.100 in Canada says that Sir Dennistoun Burney, the moving spirit in the Airship Guarantee Co. Ltd., who has had the supreme satisfaction of reaching Canada with his ship before the Government-built R.101 has made any considerable journeys, stated in Canada that with a capital outlay of thirty million dollars he could run a London—Montreal airship line with four ships of a type similar to R.100, but, naturally, improved.

CLIMBING SPEED.

Our good friend Mr. Victor Lougheed, always interested in figures, sends two beautiful examples of journalistic accuracy.

Describing the voyage of the R.100 to Montreal *The Daily Mail* (Continental) of Aug. 2, on the strength of a correspondent at Montreal, says:—"The R.100 suddenly struck a cold belt while flying at 1,000 feet. In 15 seconds she bounced upwards almost vertically to 4,000 feet like a ball."

Mr. Lougheed calculates that 4,000 minus 1,000 feet = 3,000 feet = 1,000 yards. 15 seconds = ¼ minute, so that the speed of that climb represented 136 m.p.h.

Even that is beaten by the Paris edition of *The New York Herald* of Aug. 3, which, describing the same incident, reports one of the officers as saying "We had been travelling at a height of 1,000 feet and in 2 seconds we rose to 4,000." This apparently works out at 1,023 m.p.h. As Mr. Lougheed remarks,—Where does Schneider Cup speed come in?

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BRITISH AIRSHIP POLICY.

By Major P. L. Teed.

First Causes.

To write on British Airship Policy is to attempt a task of no mean difficulty. If one reviews the past, one finds that like such diverse creatures as the Unicorn and Mrs. 'Arris, it has been a myth rather than a reality. If one listens to contemporary propagandists, some of whom appear to combine a professional skill in axe-grinding with an ungifted amateur's knowledge of aeronautical engineering, its future is unlikely to be more substantial.

In the pre-war period, airships, both as military weapons and as means of commercial transport, were regarded as a subject suitable for jokes, some of which must be regarded as unsuitable for repetition. Yet, while the craft were looked upon with contempt and derision by those in Military authority, their reasoning was subject to questioning doubts such as constitute, in the domestic and commercial fields, the most powerful contributory cause of the prosperity of Insurance Companies.

If our neighbours had several very large airships on which they seemed to place a ridiculous reliance, it might not be a bad thing to have a few small ones. Thus, from such muddled minds, a Farnborough phase was born, which, in its turn, gave birth to a series of the most laughed-at creations which a Government institution has ever produced.

Differentiated from each other by a letter of the Greek alphabet, these slightly navigable balloons have become a tradition. Men who mounted into the Heavens in them, believed and still believe themselves to be, heroes, and now in the Autumn of their lives, as Harry the King anticipated of the survivors of Agincourt, they "remember with advantage what feats they did that day."

Nor was the usefulness of this Military stage merely limited to the production of the now bewhiskered joke and the reminiscent hero, there was pathos besides—*Beta*, the most celebrated product of the age, died on the Field of Honour.

In the defence of the Empire she had flung herself into the fray and ultimately one dark and dismal night was housed in a partly demolished Belgian factory, under the charge of a stalwart E.R.A. As dawn drew nigh, footsteps were heard (it was never definitely ascertained whether they were those of an amorous and buxom *blanchisseuse* or of a melancholy and meandering goat), a challenge was made and, failing a response, the trusted guardian fired his revolver. As the reverberations died away, all was as before, save that *Beta* was dying. From a bullet hole in her goldbeaters'-skin side there ebbed away her life's hydrogen, for lack of the proper gubbins with which to stick on a patch.

The Naval contribution to Britain's airship adventures started with the building of its first Rigid, unofficially named, with prophetic humour, *The Mayfly*. Because of paradoxical reasoning, which anyone possessing an official mind will surely follow, a firm experienced in the production of the heaviest ships was selected for the construction of the lightest.

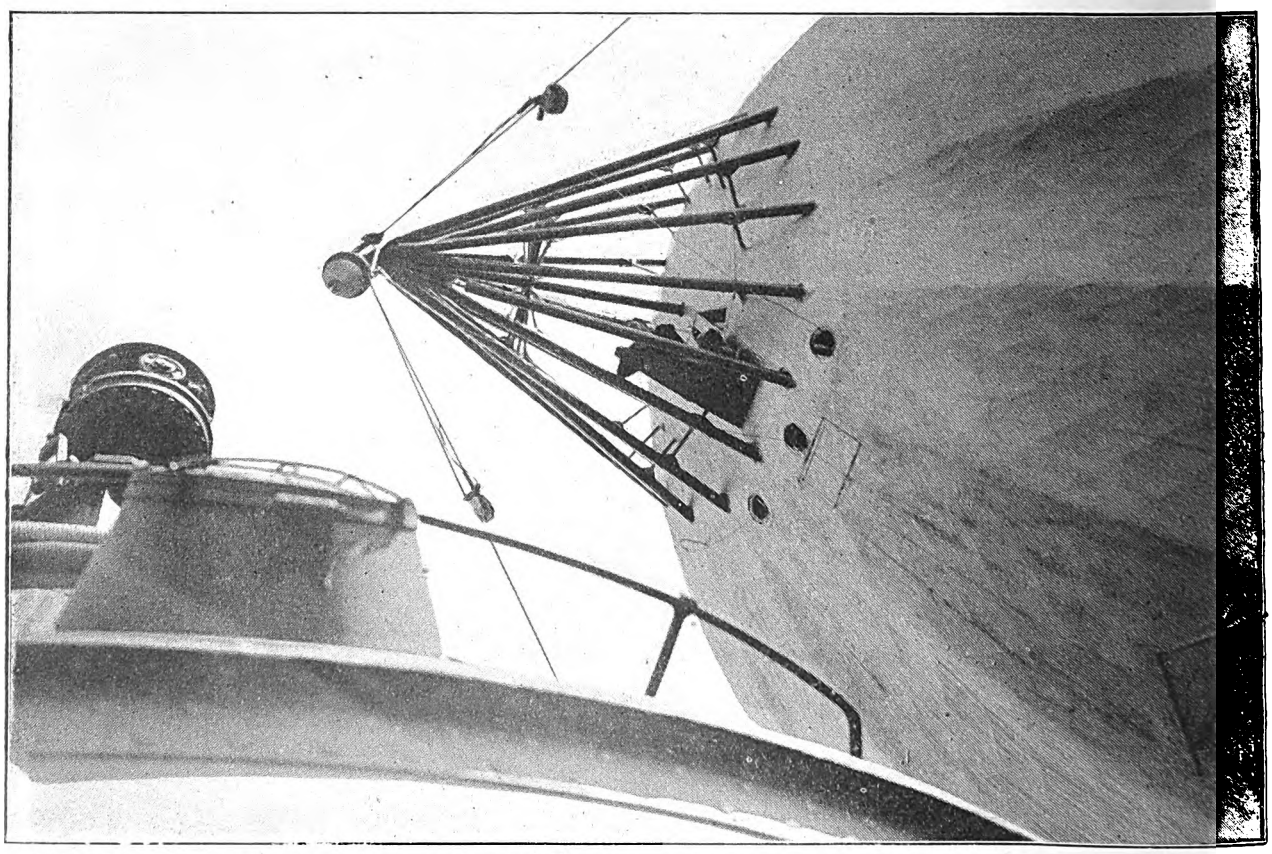
After innumerable delays and inaccurate prophecies of performance, both of which are as inevitably associated with each step in development as a collection with a religious service, on a Summer morning in 1911 the great ship emerged from her shed on Cavendish Dock, looking for all the world like some fantastic and gigantic cracker,—she looked hard to pull but the Navy soon managed to have her in two.

Following this denouèment there was one of the characteristic pauses which have been something of a feature of British airship policy. But by 1913 the optimists were again in the ascendant and a further order was given.

At this time the Armament Firms were being hotly accused in certain sections of the Press of something verging on questionable practice. Whether or not there was any truth in the insinuations then made the writer is of course quite unable to judge, but, in so far as this particular ship, R.9, was concerned, he can certainly testify to their having been no scamping of material—like certain brands of margarine, she was at least double overweight. And, as a consequence, she was of limited use for flying, though by no means useless.

Ultimately she went to the airship station at Pulham, then commanded by an officer of imagination and distinction who had earned a well-deserved reputation for being able to employ with success practically anything for a purpose other than that for which it had been designed. By the simple process of removing the first twenty feet of her bow and standing it vertically upon the ground, he was at once in possession of a structure whose exterior provided admirable support for climbing roses, while on Guest Nights its interior was suitable for the accommodation of the station band.

During the period of hostilities (1914-18) many airships



NEARLY HOME.—The last few seconds of R.100's return voyage from Montreal. The central cable to the mast is invisible because of the angle of the light, but the lateral mooring cables can be seen, also members of the crew on the platform projecting from the nose trap-door. To be seen at its best this picture should be held overhead.—(*"Aeroplane" photograph.*)

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were produced to native designs. But the greatest advance in Rigids was due to the Germans (then called unanæmic Huns), who one night left a couple of models in Essex which were so immeasurably superior to anything this country then possessed or had in contemplation that in spite of our traditional insularity it was obvious that a marked gain in efficiency was obtainable merely by slavish imitation.

Because of the War coming to a conclusion more rapidly than the construction of these copy ships (due no doubt to the larger personnel employed in the former undertaking), they and other Rigids building at the Armistice were never used for the purpose for which they were intended, indeed they were scarcely used for any purpose—for a total expenditure of £1,825,000, the country got R.33, 34, 36, 38, and 80 and the R.A.F. flew them, in all, for under 1,600 flying hours —mainly under fair weather conditions.

As a result of this limited experience the Service had small knowledge of the potentialities of craft which had done so little, while those outside the charmed circle were naturally still more ignorant. Therefore, when in 1923 a simple naval officer (who had never himself flown in a rigid airship) asked why such vessels should not be used for improving Imperial communications, it seemed that this almost childlike question could best be answered by building two, for, as is well known, valuable ideas have more than once been obtained from less promising inspirations.

Minor Prophets.

The decision to construct a couple of airships produced reactions in a variety of people. While the man-in-the-street, with his habitual common sense, was perfectly willing that his money should be risked on an experiment, of the success of which he would judge by results, a small and ill-assorted collection of people with laughable solemnity assumed the prophetic mantle, a garment permissible to the poet but one whose wear should undoubtedly be forbidden to all whose views are the product of limited reason rather than of unlimited inspiration.

Technicians, who should have hastened to get on with the job, blew their trumpets before mutoal admiration societies, which fortunately enough conduct their proceedings in virtually sound-proof premises. Aeronautical amateurs, whose oratorical talents had hitherto been restricted to the domestic circle, sought and found a wider audience. Axe-grinders, inspired by hope of personal gain or fame, almost indecently sharpened their weapons in public. Fanatics foamed furiously—by the varying media of speech, article, interview, paper, book and broadcast. All set forth their claims to foretell the result of the experiment, but, because no two agreed (indeed the controversy is unique in that one of the seers, in his fierce determination to be right for once at all costs, issued at different periods, equally dogmatic but entirely contradictory predictions), the man-in-the-street, while awaiting the trials of the ships, remained unmoved and continued undisturbed his generally vain effort to spot the winner of the 3.30.

That there should have been such a plague of prophets is a somewhat singular phenomenon, for had our solemn soothsayers some knowledge of the past they would have known that they could have none of the future. Owing no doubt to their having, at the best, been merely educated in contemporary science or, at the worst, brought up in the Navy, they have galloped and galumphed about a field which has been notably free from the impress of angelic feet.

Prophecy even in the heyday of the Art was seldom accurate. Indeed in the trial of seven oracles conducted by Croesus, King of Lydia, about 551 B.C., under the oracular equivalent of the Queensbury Rules, but one showed any approximation to the truth. By the simple process of sending messengers to the seven exponents with instructions to ask on a particular day what the King was doing on that day, it was at once clear that six of them had not the very slightest idea. The seventh, it is true, did say, what in fact was the case, that his Majesty was boiling mutton and tortoises. This, however, may have been a lucky guess: such culinary adventures may have been as common with this King as was the laying of the foundations of ducal houses with our Charles II.

Now these ancient prophets were professionals, who by long study of the black arts had gradually worked up to the positions they ultimately occupied, but our airship seers have done nothing like this. Not one of them has studied necromancy, not even by correspondence course or evening classes, and, as to the casting of murrains, why, they have less conception of this important branch of the art than a cat has of the calculus. In bidding them farewell, one immortalises them:—

> They say *The Times* and Mudies keep,
> The book each Prophet thought so deep,
> But now, the Common Man, who's not an ass,
> Reads them not, except to go to sleep.

First Results.

Last Winter the two vessels, whose completion had been variously promised as being likely to occur at any time between 1926 and the Day of Judgment (which not unimportant event in World History, according to some authorities, might well have to be delayed), were declared by their respective constructors to be finished. Each flew a certain amount in a distinctly encouraging way (thus showing the taxpayer that he had at least got something for his money, if not his money's worth). Then, after these preliminary canters, both retired once more into their sheds,—where completion was presumably made still more complete.

While this process involved nothing comparable in magnitude with the traditional architectural adjustment necessitated by the initial omission of the staircase from the otherwise finished house, the fact remains that six months after their first flight and six years after their design was begun, neither vessel had flown on an Empire route with or without a commercial load.—Though undue haste is undoubtedly a vice, undue slowness is not necessarily a virtue.

Though the two ships differ greatly in design, material of construction and method of propulsion, they have at least one feature in common,—neither meets, with regard to fixed weight, what in one case is a legal and in the other a moral obligation. Both craft definitely exceed the specified figure of 90 tons, not by ounces, pounds or hundredweights, but by tons.

R.100 is distinctly the lighter of the two. But, because she is propelled by petrol engines whose fuel is admittedly not without danger and R.101 has heavier but safer Diesel motors, the former has some of the characteristics of a celluloid cat and the latter the equivalent of those of a leaden mastodon.

So far as speed is concerned, while it is believed that R.101 has attained the specified figure of 70 m.p.h., R.100 has undoubtedly surpassed 82 m.p.h. Thus this Country has the double distinction of possessing the records both for slow building and for fast flying.

Thanks to the ability of the two designers and to the cautious factors of safety fixed by the Airworthiness Authority, both ship have hulls of sound design and of a strength which if it were to prove seriously inadequate would make civil airships impossible.

Turning now to other aspects of this many-sided problem, —although the life of a rigid airship's Outer Cover is unknown, what is known is that with ships like the two R's to remove the old cover and put on an already manufactured new one (which is about six acres in extent) takes three months, during which time the vessel can earn no revenue.

Similarly the lasting properties of gasbags (which are readily subject both to mechanical and fungoid damage) are equally indeterminate. But again some relevant facts are available,—for a very experienced firm to make a set of bags for either of the ships under consideration, takes one year and requires about one million and a quarter goldbeaters'-skins (known in America, where the poetic imagery of the people will out, as "beef bung gut skins").

While both machines have been officially described as commercial airships, one hesitates on various grounds to agree with the adjectival qualification. Their cost per unit of passenger accommodation has been approximately six times that of a passenger carrying aeroplane (which one understands from the Secretary of State for Air is not commercial in the ordinary sense of that term).

Their operational cost per passenger mile remains a subject for conjecture. However, as a result of limited experience, one expects that the missing figure will compare unfavourably, at least for the present, with that of any alternative rational means of transport.

Doubts.

The safety of the airship has been variously and often intelligently questioned. One critic, familiar both with R.100 and with the Board of Trade regulations, has somewhat pertinently asked what would be said by the representative of a shipping company, if a passenger, on arrival at the liner's gangway, declared his luggage to consist of:—Petrol—73 gallons; Hydrogen—50,000 cubic feet; Nitro-Cellulose 19 lbs.?

While the phraseology of the response to this declaration would largely depend on whether it was given by a quarrelsome quartermaster or a peaceful purser, there can be no doubt about its meaning, yet, for each of the 100 passengers of R.100, the above quantities of inflammable, and under certain conditions, explosive materials, are an absolute essential to his conveyance over a distance of some 3,000 air miles.

Another doubting Thomas, with a theological knowledge in excess of his understanding of physics, has suggested that if when travelling by airship to India a thunderstorm were encountered, his destination would be automatically

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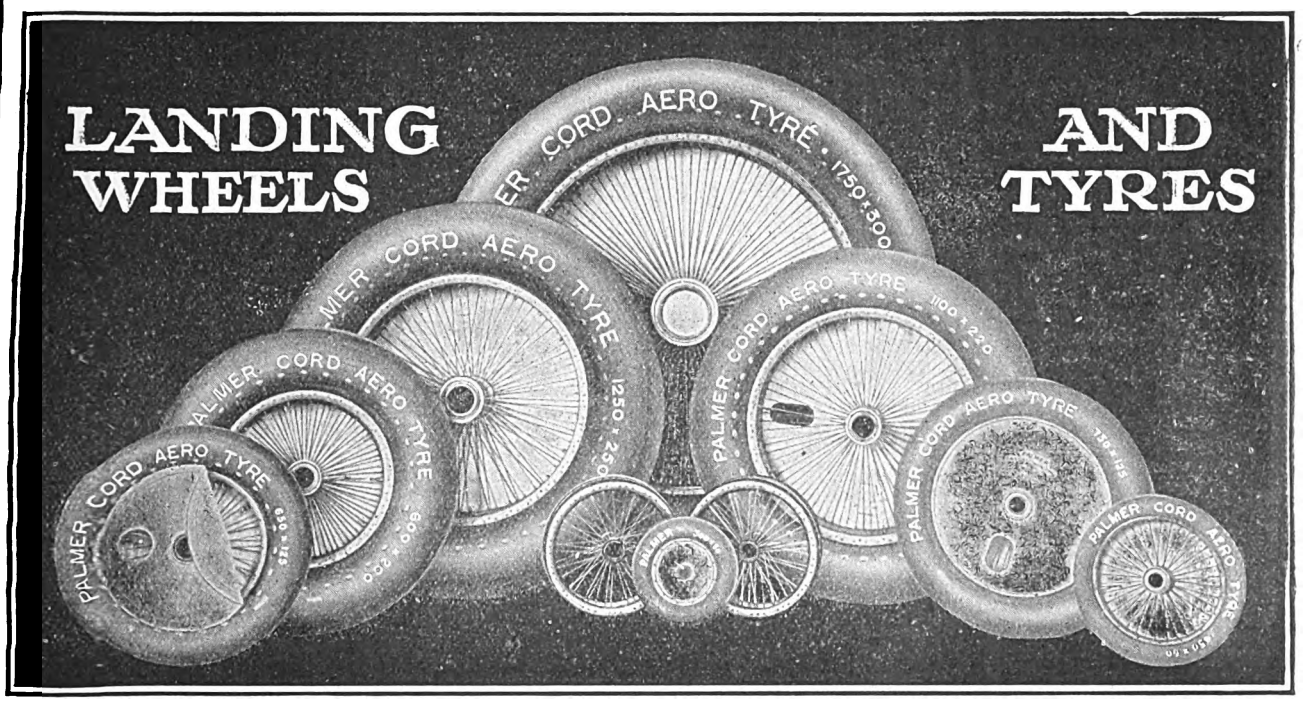

STANDARD SIZES.

Tyre Size	Wheel No.	Hub Length	Hub Bore	Track Line
		m/m	m/m	m/m
375 × 55	168	111.12	25.4	Central
,,	195	130.	38.09	Central
300 × 60	16	111.12	25.4	Central
450 × 60	30	89.	31.75	Central
,,	172	130.	38.09	Central
575 × 60	21	160.	28.	Central
,,	180	150.	38.09	104/46
,,	186	120.	34.92	Central
,,	190	150.	38.09	Central
600 × 75	21	160.	28.	Central
,,	180	150.	38.09	104/46
,,	186	120.	34.92	Central
,,	190	150.	38.09	Central
700 × 75	78	178.	44.45	132/46
,,	79	178.	44.45	Central
,,	100	178.	38.09	132/46
,,	101	178.	31.75	132/46
,,	196	178.	55.	Central
600 × 100	188	120.	34.92	Central
,,	304	150.	38.09	104/46
,,	333	120.	34.92	Central
700 × 100	77	178.	44.45	132/46
,,	92	185.	55.	135/50
,,	95	185.	55.	Central
,,	99	178.	38.89	132/46

Tyre Size	Wheel No	Hub Length	Hub Bore	Track Line
		m/m	m/m	m m
700 × 100	112	150.	38.09	Central
,,	176	178	44.45	Central
,,	179	178.	55.	132/46
650 × 125	119	178.	55.	132/46
,,	147	178.	55.	Central
,,	188	120.	34.92	Central
,,	336	178.	44.45	132/46
750 × 125	77	178.	44.45	132/46
,,	92	185.	55.	135/50
,,	95	185.	55.	Central
,,	99	178.	38.89	132/46
,,	112	150.	38.09	Central
,,	176	178.	44.45	Central
,,	179	178.	55.	132/46
800 × 150	161*	185.	55.	135/50
,,	162*	185.	55.	Central
,,	163*	185.	66.67	135/50
,,	169†	185.	55.	135/50
,,	177	185.	55.	135/50
,,	183	185.	55.	Central
,,	211*	185.	60.32	135/50
1000 × 150	167	185.	55.	125/60
,,	174	250.	80.	Central
,,	182	185.	55.	Central
,,	187	220.	66.67	Central
,,	201	185.	60.32	125/60

Tyre Size	Wheel No.	Hub Length	Hub Bore	Track Line
		m/m	m/m	m/m
1000 × 150	210	185.	60.32	Central
1000 × 180	148	220.	80.	Central
,,	149	185.	55.	Central
,,	155	220.	66.67	Central
,,	163	185.	55.	125/60
900 × 200	107	185.	55.	Central
,,	108	185.	55.	125/60
,,	128	220.	66.67	Central
,,	137	250.	80.	Central
,,	157	185.	80.	Central
,,	202	185.	60 32	Central
1100 × 220	134	220.	66.67	Central
,,	136	250	80	Central
975 × 225	192	185.	60 32	Central
,,	194	185.	55.	125/60
1100 × 250	364	220.	60.32	Central
1250 × 250	314	250.	80.	Central
,,	154	304.8	101.6	Central
1500 × 300	305	304.8	152 4	Central
,,	306	304.8	101 6	Central
1525 × 325	197	304.8	101 6	Central
1750 × 300	139	400.	152 4	Central
,,	191	350.	150.3	Central
1750 × 350	193	400.	125.	Central
2000 × 450	363	500.	152.4	Central

Wheels Nos. 161, 162, 163 and 211 are of stronger type than the other wheels for 800 × 150 tyres. † Wheel No. 169 is fitted with Ball Bearings.
Grease gun equipment is now a standard fitting on all wheels. (A/SL)

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changed to the Nether Regions. Though this gloomy anticipation might better meet the merits of the case, experience, gained chiefly in Zeppelins, has shown that while every effort should be made to avoid the storm area, if this is impossible, by flying low and allowing no hydrogen to escape, even being directly struck by lightning can be perfectly harmless. In fact the effect of this Thomas's hypothesis would be to delay his reaching India rather than to accelerate his arrival at what he believes to be his ultimate destination.

While former members of the Silent Service (whose years of verbal suppression often render them excessively articulate after retirement) from time to time assert that airship navigation is impossible, this means no more than that it would be impossible for these dogmatic old sea dogs. If either land, sea, sun or stars are visible, an airship can be conned with a precision little inferior to that of a surface vessel. And during daylight hours with nil visibility, by means of directional wireless a satisfactory degree of accuracy is obtainable. At night, when the wireless method is less precise, cloud height is generally such as to enable star observations to be obtainable from no great altitude.

THE HARVEST.

The great airship experiment has reached a stage when we can in some degree evaluate the measure of its failure and of its success.

Both with regard to the weight of the ships and the time required for their construction, the experts have varied between wrong and very wrong. Our engines are not suited to their job. Our outer covers are probably inadequate and are certainly far too time-consuming in their attachment. Our gasbags are definitely too costly and their life is probably too ephemeral.

The Empire was promised, and was thrilled by the promise of, better communications. Yet as regards the route to the West, the ships are definitely unable to operate except under favourable weather conditions (which are too infrequent to permit of working to a time-table). On the route to the East, R.100, because of her petrol fuel, is not considered safe for commercial operation.

Now turning to the other side of the picture, and there is very definitely another side. We have one vessel capable of carrying 100 passengers on a nonstop flight of 3,000 air miles, at a speed of 70 miles an hour—an achievement which has never hitherto been approached. We have another which, at a slower rate, may well be able to operate to a time-table between this country and Egypt. And, above all, we have two machines which, if they are fearlessly and continuously tested under conditions approaching commercial requirements, for a period of not less than two years, will yield valuable data which will allow of a further and more certain step being taken towards a by no means unworthy goal.

Contemporaneously with this absolutely essential period of trials, we shall have the opportunity of trying (A) to evolve an airship engine which is light, economical and reliable (B) to discover a gasbag material which is cheaper, more durable and capable of more rapid manufacture (C) to find a better and more quickly attached outer cover.

In the distant past we put our hands to the plough in a doubtful and hesitant manner, more recently our optimism has outrun the measure of our capability, but now, with the wisdom of experience, we should be in no mood to accept defeat.

THE S.B.A.C. CHALLENGE CUP.

The Royal Aero Club announces that the Race for the S.B.A.C. Challenge Cup and Prizes of £75, which was postponed from the Bristol Meeting because of bad weather, will be held at Ratcliffe, Leicestershire, on Sept. 6 next, on the occasion of the official opening of the private aerodrome of Mr. W. Lindsay Everard, M.P., the President of the Leicestershire Aero Club.

The Race is open to recognised Light Aeroplane Clubs and the pilots must have been trained *ab initio* by the Clubs.

The organisation is in the hands of the Leicestershire Aero Club.

One hopes that Mr. Perrin has now got permanent possession of the cup, and will not be compelled to ask for it back from the winner (as happened at Newcastle last year) so as to return it to the people who had distrained upon it as a presumed asset of the previous holder. That was one of the really funny stories of last year's sporting flying.

SLOW GOING.

According to an N.F.S. Bulletin the Japanese aviator Azuma started a flight to Tokyo from Hanworth on Sunday, July 27. Photographic evidence shows that he left Croydon in continuation of the said flight on July 31. Four days from Hanworth to Croydon seems moderate progress.

ACROSS CANADA AND BACK.

The following telegram has been received from De Havilland Aircraft of Canada Ltd.:—

O'Brian and Mickleborough completed three weeks' trans-Canada demonstration tour of six thousand and fifty miles on Puss-Moth by beating their former record flying from Winnipeg to Toronto in twelve hours in spite of loss of two hours daylight stop flying time enroute to Vancouver and back fifty-eight hours or average speed of one hundred and four m.p.h. demonstration flights accounted for further twenty-nine hours and over two hundred and fifty passengers carried stop cities visited Winnipeg Brandon Regina Moose Jaw Medicinehat Calgary High River Cranbrooke Grandfalls Vancouver Lethbridge Edmonton Northbattleford and Saskatoon stop Puss-Moth received with enthusiasm everywhere neither aircraft or engine gave slightest trouble O'Brian pilot says even when flying over Rockies I had complete confidence in Gipsy engine which never lost a rev. on whole tour stop Mickleborough passenger says there never has been such a delightful aeroplane as the Puss-Moth after twelve or fourteen hours a day we arrived at our destination as fresh as a daisy without a suspicion of tiredness the tour has been a glorious holiday.

We are informed that Castrol was used in the Gipsy III engine throughout the tour.

SOUTHERN DEVELOPMENTS.

The Hon. Inigo Freeman-Thomas, son and heir of the Viscount Willingdon, has joined the Board of Southern Aircraft Ltd., at Shoreham, and intends to take a practical interest in its future development. The Board of the Southern Aircraft Company has also been strengthened by the addition of Mr. Herman Volk, who was one of the pioneers of seaplanes in this country.

When Mr. Glenn Curtiss brought his first flying-boat to England Mr. Herman Volk, who was then running the coastal electric railway at Brighton, put up on the beach a portable canvas shed of his own design and invention which constituted in fact the first flying-boat station in this country. During the War Mr. Volk was in charge of the production of Short seaplanes at Sage's of Peterborough and later, with Col. John Porte, he organised for Sir Charles Allom and Mr. Nicholson the Gosport Aircraft Co. Ltd., which, but for the financial slump of 1921 might well have become one of the leading aircraft firms of to-day. He had at any rate the credit of building one of the two biggest flying-boat hulls ever built,—until the appearance of the Do.X.

The Southern Company intend to concentrate for the present on their little single-seater the Martlet, the demand for which so far exceeds the supply. Certainly minor modifications are being made in the existing type and the machine will generally be cleaned-up before putting a batch into production this Winter. The last machine produced, with an Armstrong Siddeley Genet engine, was built for the Marquess of Clydesdale and was delivered to him at Heston last week.

SILENCING LIGHT AEROPLANES.

The silencing of light aircraft is a problem which is engaging the attention of some quite bright brains at the moment, and naturally the exhaust of the engine, which in theory should be the simplest to suppress, is receiving the closest attention. There is interest in noting that Mr. D. K. Marendaz, well-known as a racing motorist and designer of racing cars, has for some time past been experimenting with a car silencer on his Moth, which he entered for the King's Cup Race.

The unit he has been using is a Vortex Silencer, whose working principle—utilising the inertia of the gas to create vortices—has already proved successful in motor-boating and motoring and may be called the most aerodynamic of silencing principles. Incidentally, although Mr. Marendaz's researches, which are not yet ended, have been conducted independently, Major F. B. Halford, the designer of the original Cirrus and of the Gipsy engines, and more recently of that most promising affair the H-type engine, is on the board of Vortex Silencers Ltd., so Mr. Marendaz is in good company in his ideas on the subject.

N.F.S. AT BLACKPOOL.

During the week of Aug. 10 to Aug. 16 the two Desoutter monoplanes (Hermes) of National Flying Services Ltd., stationed at the Blackpool Municipal Aerodrome, Stanley Park, took up 1,155 passengers. In one month the Blackpool and Fylde Aero Club, recently formed under N.F.S. auspices, has enrolled 12 pilot members and is giving active instruction.

Mr. E. W. Stewart, manager of the Stanley Park aerodrome, says that the field presents a patchy appearance from the air because of the drains which have been laid and covered in, but the surface is really quite smooth and good. The aerodrome has an excellent brick building for aircraft which contains a workshop and has running water and all conveniences. The one petrol pump is being augmented by four more, and full service and maintenance are available there.

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For her "MYSTERY" flight The Hon. Mrs. Victor Bruce has selected a Blackburn Bluebird Light Aeroplane.

The Bluebird has side-by-side seating and all metal construction. Price **£595**

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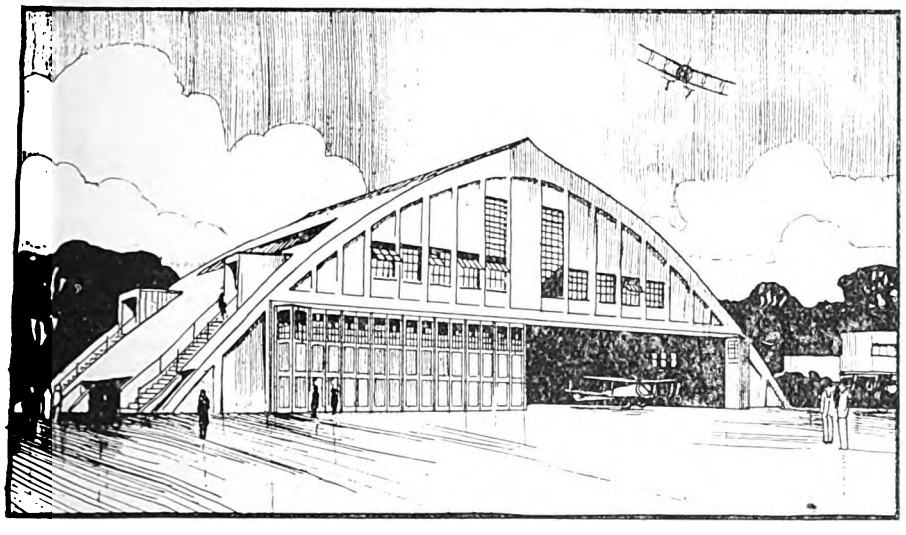
THE AEROPLANES' HOME NEEDS A BIG FRONT DOOR



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Aeroplane Hangar at Heston Aerodrome enclosed with Esavian Folding and Sliding Doors, fitted with Winding Gear.

The Esavian Doors as illustrated are 100 feet long and 19 feet high. They can be opened and closed easily by one man by means of the patent Winding Gear.

Esavian Doors with Winding Gear have been fitted to openings 32 feet high and 100 feet wide, and, owing to the way in which the Winding Gear operates, they can be opened and closed whatever the wind pressure.

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CORRESPONDENCE.

INQUIRIES INTO ACCIDENTS.

Sir,—I have had a number of opportunities recently of discussing civil aviation with people who know nothing whatever about it, and who, in this respect, are probably fairly representative of the greater part of the population of this Island.

They consider travel by air to be very dangerous and that the principal dangers are roughly as follows:—

(1) A disturbance of the air vaguely described as a "bump" occurs not infrequently even in calm weather. Its effect is to hurl the machine down several thousand feet and to break off its wings.

(2) A near relative of the bump, whose effect is to cause the machine to nose dive into the ground in spite of every effort on the part of the pilot to prevent it.

(3) Petrol when put into aircraft tanks is liable to detonate with extreme violence while the machine is in flight, and without other provocation.

Now the fact that these and other similar ideas are current is due simply and solely to the fact that when a civil crash occurs the public are not authoritatively told why.

There is usually only an inquest. The coroner does not know the reason of the accident and the only man who probably does know is an Air Ministry Official who is not allowed to say what he thinks.

Hence the public, not being told the correct cause, imagine causes themselves and the result of these imaginings does not help aviation.

If a railway train runs off the lines and kills people, or if a boiler bursts, there is an official and public inquiry, the cause is ascertained and appropriate remarks are made to the individual or firm found to be responsible. The public feel that the cause has been ascertained and that the appropriate remedy will be applied and consequently do not lose confidence.

Is it really impossible to do the same thing in the case of every fatal accident to a civil aircraft?

(Signed) W. O. Manning.

COMMONSENSE.

In the past few months there have been one or two accidents to privately-owned aircraft, which some people would place under the heading of "mysterious."

If the daily Press does not describe an accident as "mysterious," which is unfortunate for aviation, they say point blank that the machine "broke up in the air," which is even more unfortunate, since experience shows that the modern proven light aircraft does not break up in the air. Such statements are at least unfair to our excellent manufacturers, some of whose names are almost household words. From the point of view of one who has been piloting aircraft since 1912, and who, particularly in his early days, had first-hand knowledge of more accidents than he cares to remember, there are to-day, only three items which do give rise to some inquietude. These are: Engine failure, Collision, and Fouling of Controls. (The results of bad weather are felt in every form of Transport.)

Engine failure is becoming so uncommon that when it does happen the modern pilot is unprepared. Collision is happily infrequent, but with the increasing numbers of aircraft it behoves pilots to extend greater diligence in this respect. Fouling of controls, unfortunately, can seldom be proved, as the resulting crash is nearly always fatal..

Now, all these three forms of accident are dependent on the human element, and the simplest to avoid is the last.

It would be as well if those who fly, either as Pilot or Passenger, would *carefully* stow away the oddments, or make fast the belt or harness that they sometimes disdain to use.

(Signed) G. F. Pretyman, Wing-Commander.

FOREIGN AEROPLANES WITH BRITISH MARKINGS.

Sir,—May I be allowed a little space to enlighten (Mr.) B. Stacey on one or two points of International Aeronautics, as his information is evidently very sparse on that subject. Firstly, no aircraft built abroad is allowed to operate for hire or reward in Great Britain unless the Certificate of Air Worthiness issued by the Aeronautical Authorities of the Country of Origin is validated by the British Air Ministry. It is therefore quite obvious if the Certificate is validated that our Air Ministry has assured themselves the Aircraft has been built to certain high standards and has also gone through thorough searching inspection during construction.

It may be news to Mr. Stacey that several foreign countries have set a very high standard for their aircraft constructors. So high in fact that excellent British Aircraft as passed out by our A.I.D. would not gain foreign Certificates. As an example, license to manufacture a certain British light aeroplane was taken out in America some months ago and some difficulty has been experienced in obtaining a Certificate, in fact, the writer is not sure if this has yet been granted.

Secondly, as a proof of the very high standard of foreign aircraft may I introduce Mr. Stacey to the Ford Tri-Motor, All-Metal High Wing (unbraced) Monoplane. This aircraft, of which over 300 have been manufactured in the past 12 months, is the type of aircraft used by the *majority* of American Air Lines. During this period they have flown over 6,200,000 miles and their record has not been marred with any case of structural faults or failure. They are built of an alloy (mainly Alclad) which is only just being adopted in Great Britain, an alloy that has anti-corrosive properties second to none, without losing any strength.

The aircraft has been constructed with a view to easy maintenance and inspection. The internal construction of the wing is examined by the simple expedient of climbing via the passengers' saloon to the wing itself. No doubt Mr. Stacey saw in a recent issue of The Aeroplane a photograph of the Tri-Motor Ford Aeroplane incorporating three Diesel type radial aero engines. He will doubtless appreciate that a great step towards the fire-proof aeroplane has been made by incorporating these engines into all metal aeroplanes.

We appreciate Mr. Stacey informing us that he is a layman. This doubtless accounts for his amateurish views on the Aircraft Industry of the World. If these notes have shown our uninitiated members of the Aircraft Community (as well as others who hold similar views) the extreme folly of considering every other country years behind ours in Aircraft matters, a policy which has been preached by The Aeroplane for many moons past, the writer considers that his very humble literary efforts have not been wasted.

(Signed) G. W. Higgs.

[N.B.—There can hardly be any need to explain that Mr. Higgs is concerned with and for the Ford Company.—Ed.]

Sir,—Mr. B. Stacey though apparently in search of information and enlightenment, seems to me (I may be wrong) to have a preconceived notion that all foreign aircraft are less soundly constructed than British machines.

Should this be so, my letter is not addressed to him, so much as to a broader-minded class of The Aeroplane readers.

If the "finest Government Inspection Service in the World" validates foreign airworthiness certificates, thus allowing certain foreign types to fly under British registration, it would seem that such aircraft must come up to the high standard of the Inspection Service in question, and therefore "this state of affairs" should not need explanation, even to a layman.

When one considers, as Mr. B. Stacey does, the care and expense we go to, to ensure the safety of travellers in British aircraft, one must, especially if one is fair-minded, and knows the sterling qualities of the Dutch people, consider that the manufacturers of the Fokker machine, the Dutch Government Inspection Department and the Royal Dutch Air Lines, all go equally far in the same matters to ensure the safety of passengers in Dutch aircraft.

To a layman, the proof of the pudding should be in the eating, and the wonderful record of the Fokker machine all over the World, as well as the ten-years' air-line operating of the Royal Dutch Air Lines, whose reputation for security and reliability is equal to that of any Air Traffic Company in existence, should serve to allay Mr. B. Stacey's doubts concerning one type of foreign aircraft at least.

Should Mr. B. Stacey require British evidence regarding the Fokker, I commend him, amongst the many British pilots who are familiar with this type to Wing Cdr. Kingsford Smith of the *Southern Cross*, Mr. Barnard and Mr. Little of the *Spider*, and Mr. McIntosh and Mr. Jenkins of Major Andrew Holt's three-engine Fokker.

As to whether the ply-wood covered monoplane wing without external bracings can be as satisfactorily examined for daily duty as varieties strutted to the fuselage, I may point out to Mr. B. Stacey that satisfactory examination for daily duty has been performed wherever K.L.M. machines have operated all over Europe for the last ten years, and that no case of wing trouble has been recorded during that period. As, however, on the general excellence in every respect of the ply-wood covered monoplane wing and allied types, innocent of struttings to the fuselage, a number of British manufacturers of such type will probably wish to have a word with Mr. B. Stacey for his enlightenment, I feel that I should no longer occupy space in a column likely to be in considerable demand.

(Signed) H. Spry Leverton,
Aerodrome Manager, Royal Dutch Air Lines (K.L.M.).

(K.L.M.)

AN ACKNOWLEDGMENT OF GOOD WORK.

Sir,—On the night of Sunday 3.8.30 my Moth G-AAEN was housed at Brussels. Some alterations or extensions were in process at the hangar there, and in connection with these we found next morning that the gale had blown in a heavy glass-paned door on the spot to which, without our knowledge, the Moth had been moved after our departure the night before. The door fell on the starboard tail-plane, but fortunately the empennage was absolutely undamaged. The transmitted tortional stress on the fuselage, however, burst the convex ply-wood fuselage-cover longitudinally for three to four feet, and broke the rear bulkhead frame.

On Tuesday morning Monsieur Stampe of Stampe and Vertogen of Antwerp (Deurne Aerodrome) flew over with a rigger and spare wood, patched the Moth up temporarily, and escorted my pilot back to Antwerp. Before evening a complete repair had been made, and when the paint (correct colour) had dried the Moth was as good as ever. All material used was "certified airworthy," and the *total* charge for services was about £4.

This firm, the accredited Belgian Moth agents, is also taking up the question of liability, free of charge to me.

Of the actual assistance rendered, the extraordinary moderation of the charge made for it, the bare facts speak for themselves. But even they would not alone attest the extreme sympathy, helpfulness, and goodwill displayed by

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CHALLENGE INTERNATIONAL DE TOURISME, 1930

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M. Stampe and M. Vertongen at every stage in the proceedings.

I am sure that to be informed of the existence and excellence of their establishment would be of service to British air visitors to Belgium generally, and I hope that others in less pressing need than ours may benefit by our experience.

Thanks to this help we were enabled in not the best of weather to complete as planned, with only a couple of days' delay, a trip down the Rhine and over the Black Forest to Switzerland which looked like being terminated after its first day. Of the seven or eight other Belgian, German, Swiss and French aerodromes we visited we found Basel quite exceptional in the kindness and helpfulness of its officials: this fact also it may be of service to other visitors to record.

(Signed) F. A. Simpson.

Trinity College, Cambridge.

THE PRIZE-LIST OF THE CHALLENGE DE TOURISME INTERNATIONAL.

The following is a list of the prize-winners in the 1930 Challenge de Tourisme International:

Herr Fritz Morzik:
- The Challenge de Tourisme International.
- 1st prize of 100,000 francs.
- 1,500 marks presented by the Verlags Ullstein.
- Trophy presented by the President of the German Republic.
- Trophy presented by H.M. the King of Spain.
- Bronze plaque presented by the German Government.
- Piece of Gobelins tapestry presented by the Austrian Ministry of Commerce and Transport.
- Trophy presented by the Deutsche Luft Hansa A.G.
- Prize presented by the Bayerische Flugzeugwerke A.G.
- Diploma presented by the Wissenschaftlichen Gesellschaft fur Lüftfahrt.
- Gold medal presented by the Aero Club de France.
- Prize presented by the Verlags Ullstein.
- Prize presented by the City of Augsberg.
- Prize presented by the Propellerwerk Hugo Heine.

Herr Reinhold Poss:
- 2nd prize of 50,000 francs.
- 750 marks presented by the Verlags Ullstein.
- Prize presented by the Propellerwerk Hugo Heine.
- Silver medal presented by the Aero Club de France.
- Prize presented by the Norddeutscher Lloyd.

Herr Oscar Notz:
- 3rd prize of 25,000 francs.
- 500 marks presented by the Verlags Ullstein.
- 250 marks presented by Kathreiner G.m.b.H., Berlin.
- Prize presented by the Rhön-Rossitten Gesellschaft.
- Prize presented by the Dornier Metallbauten G.m.b.H.

Miss Winifred Spooner:
- 4th prize of 15,000 francs.
- 1,500 marks presented by Siemens and Halske A.G.
- Prize presented by the Reichskredit-Gesellschaft A.G.
- Gold medal presented by the Aero Club de France.
- Silver cigarette box presented by the Deutsche Luft Hansa.
- Prize presented by the Syndicat d'Initiative, Nimes.
- Medal presented by the Aero Club von Deutschland.

Herr Polte:
- 5th prize of 10,000 francs.
- 250 marks presented by the Verlags Ullstein

Mr. John Carberry:
- 6th prize of 10,000 francs.
- 750 marks presented by the City of Frankfurt Main.
- Silver medal presented by the Aero Club de France.
- Prize presented by the Hamburg-Amerika Line.

Mr. H. S. Broad:
- 8th prize of 10,000 francs.
- 500 marks presented by the Continental Gummi-Werke.
- 1,000 francs presented by the Conseil-General of Nimes.
- 1,000 francs presented by the Conseil-Municipal of Nimes.
- 1,000 francs presented by the City of Lyon.
- Prize presented by the Polish Ministry of Commerce.
- Prize presented by the Senate of the Free State of Dantzig.
- Prize presented by the Spanish Prime Minister.

Mr. S. A. Thorn:
- 16th prize of 10,000 francs.
- Objet d'Art in Sêvres porcelain presented by the French Air Minister.
- 1,000 francs presented by the City of Pau.

M. Finat:
- 17th prize of 10,000 francs.
- 1,500 francs presented by the City of Pau.

All other finishers, not mentioned above, up to the 20th have been awarded a prize of 10,000 francs.

Mr. A. S. Butler:
- 2,500 francs presented by the City of Pau.
- 3,000 francs presented by the Conseil-General of Nimes.
- 3,000 francs presented by the Conseil-Municipal of Nimes.

THE FIRST AERIAL CIRCUIT OF ITALY.

From Aug. 20 to 31 the Royal Aero Club of Italy will conduct a competition for light touring aeroplanes called the *Giro Aereo d'Italia*. It will consist of practical tests and a Circuit of Italy totalling some 3,405 kilometres. The competition is under the patronage of the newspaper *Il Popolo d'Italia* and is open to all members of the Royal Aero Club of Italy and to members of foreign associations affiliated with the *Fédération Aéronautique Internationale*.

Machines of the first category, according to the rules of the F.A.I., are those of 400 kg. empty weight, but an increase of 20 per cent. has been agreed upon, so that the 480 kg. (1,056 lbs.) will include the immense variety of popular light aircraft which just fail to come into the old rating without drastic paring.

The preliminary tests will take place between Aug. 20 and Aug. 23, after which the competitors will fly a circuit of Italy in four days.

On Aug. 25 the route will be from Rome to Rimini by way of Naples, Bari, Brindisi, Foggia, Pescara, Porto S. Giorgio, Ancona, Fano and S. Marius.

On Aug. 27 the route will be from Rimini to Venice by way of Florence, Pavallo, Bologna, Forli, Lugo, Ravenna, Ferrara, Pomposa, Padua, Trieste, Postumia, Gorizia, Udine, and San Dona di Piave.

On Aug. 29 the route will be from Venice to Turin by way of Vicenza, Trento, Bolzano, Verona, Brescia, Bergamo, Milan, Vercelli and Aosta.

On Aug. 31, the route will be from Turin to Rome by way of Alessandria, Parma, Sarzana, Lucca, Pisa, Cecina, Siena, Campigslia and Gresseto.

The total distance of the circuit is 3,405 kms. The four daily stages are 1,111.5, 872.5, 622 and 800 kms. long respectively.

The following prizes will be given to the first twenty-five competitors in the final classification: 1, 100,000 lire, presented by the Italian newspaper *Popolo D'Italia*; 2,—50,000 lire; 3.—25,000 lire; 4.—12,000 lire; 5-10 inclusive,—7,500 lire; 11-15 inclusive—5,000 lire; 16-20 inclusive—3,500 lire; and 21-25 inclusive—2,000 lire.

In addition a total sum of 300,000 lire has been presented by various cities situated on the route for the provision of special prizes, cup, trophies, etc., and certain sums of money have been set aside to provide consolation prizes for competitors who fail to include themselves in the first twenty-five of the final classification and for those who complete more than half the course and are forced to retire by damage to aircraft in a forced landing.

Practical tests will include climbing, take-off and landing, and classification of touring qualities. The rating of an aeroplane in these tests will determine a handicap to be observed at starting on each of the four stages. This plan has the undoubted advantage that it prevents a large number of aircraft from taking off simultaneously and at the same time enables the public at large to know approximately how a machine is doing in the whole competition by its position during the circuit.

The climbing test is to be done with a useful load of 200 kg. (440 lbs.), which weight includes passengers and parachutes, and 20 points is the maximum score to be earned by the aeroplane reaching the greatest height in 40 minutes. All machines must reach a minimum height of 2,000 m. (6,500 ft.) and one quarter of a point will be deducted for every 100 metres below the winning height in the specified time.

The take-off test gives a maximum of 10 points, and the landing a maximum of 15. Touring qualities will also carry a maximum of 15 points, and includes scores for fire extinguishers, parachute accommodation, stall warning, comfort, instruments, visibility, folding wings etc.

At the start of each stage in the tour the competitors will be handicapped according to their score in the practical tests, forfeiting 30 seconds for each point below maximum.

The sole British entry is Miss Winifred Spooner.

OUT-SITTING THE TREE-SITTERS.

At 09.52 hrs. on Aug. 13, Messrs. Dale Jackson and Forest O'Brine beat the re-fuelling endurance record set up by the brothers John and Kenneth Hunter in July last, by remaining in the air for 554 hours (twenty-three days), but at 06.39 hrs. on Aug. 17 they were forced to land with engine trouble. They completed 647½ hours—or nearly twenty-seven days—in the air. They flew in a Curtiss Robin with an 180 h.p. Curtiss Challenger engine round about St. Louis.

The Hunter Brothers were in the air for 553 hrs. 41 mins. 30 secs., over Chicago. Their descent was not caused by machine-gun bullets but by a choked oil filter. This flight beat a previous record by Jackson and O'Brine by more than 130 hours.

The manager of the defeated title-holders claims that the Hunter brothers are robbed of contracts worth $100,000 (£20,000) by the new record.—Chicago seems to have been a bit slow. Surely some of the gang who muscled-in on the Hunters could have done a bit of nocturnal hi-jacking on the Jackson-O'Brine outfit before they reached record figures.

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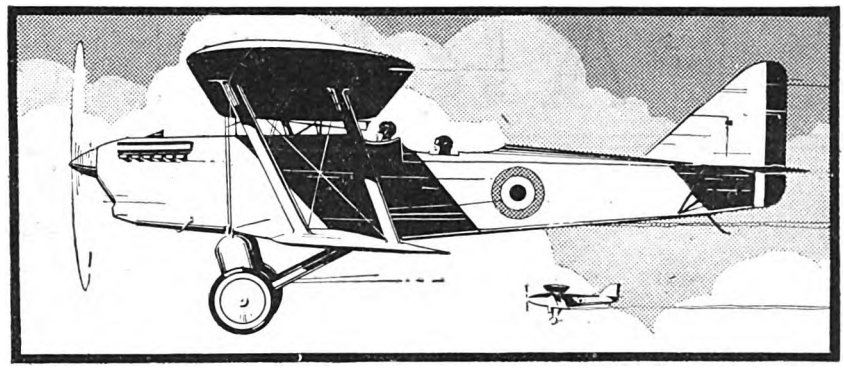

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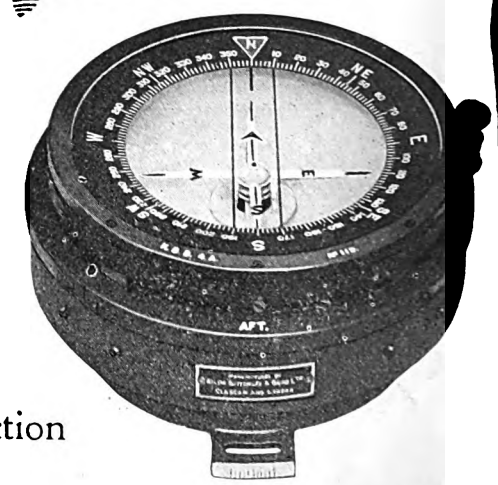

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TRADE NEWS

A HOLIDAY TRIP.

The following appeared in the Society Column of *The Times*:—

Air Marshal Sir John Higgins and Lady Higgins left Southampton on Saturday in the *Empress of France* for Canada. They will return to England on September 9.

Canada has long been a holiday resort of Sir John Higgins, but this time,—as Chairman of Sir W. G. Armstrong Whitworth Aircraft Ltd., and of A. V. Roe and Co. Ltd., and as a Director of Armstrong Siddeley Motors Ltd., he will, no doubt, do some good work for the branch establishment which those enterprising firms are already operating in Canada.

CONGRATULATIONS.

Those who realise the importance of the occasion will join in congratulating Mr. T. O. M. Sopwith, Joint Managing Director with Mr. Fred Sigrist of the H.G. Hawker Engineering Co. Ltd., on having been elected a member of the Royal Yacht Squadron. Mr. Sopwith has been a keen yachtsman for many years, in fact even before he took to flying some twenty years ago, and the Royal Yacht Squadron is the ultimate goal of all yachting men in the bigger classes.

Concerning Mr. Sopwith's yachting proclivities and his position as an aircraft manufacturer, there is a very good story. During the Schneider Trophy Contest last year Mr. Sopwith was living on his steam yacht in the Solent, which yacht is quite one of the handsomest ships in her class. By chance the yacht was moored close to one of the official ships in which one of the Higher Officials of the Air Ministry was spending the night.

Coming out of his cabin in the morning he saw Mr. Sopwith's yacht and remarked to one of the crew of the ship that it was a singularly beautiful boat. The sailor-man agreed and informed the Higher Official that it belonged to "a Mr. Sopwith, who made aeroplanes." The idea that an aircraft manufacturer could possibly make so much money as to run a yacht of such obviously expensive habit so impressed the Air Ministry Official that on returning to duty after the Schneider holiday he ordered an investigation of the Contracts Department with a view to discovering the prices paid by the British Taxpayer for his First Line of Defence.

Presumably nothing exorbitant was discovered and no drastic cuts were made, for apparently all the Air Ministry contractors are still able to live on their orders, and the Hawker Engineering Company seem to have bigger contracts in hand than anybody else in the Industry at the moment, what with Hornets and Harts and Tom-Tits.

But what the High Official of the Air Ministry did not know at the time was that in the first place Mr. Sopwith is a wealthy man by inheritance and secondly that the old Sopwith Aviation Co. Ltd. made quite a good deal of money during the War for those who were fortunate enough to hold shares in it, with the happy result that Mr. Sopwith could very well afford to run his yacht even if the Hawker Engineering Company were running at a loss, which one sincerely hopes it is not doing.

HUNTERISED AERODROMES.

To make an area of 150 acres so smooth and level that one can drive across it at 50 m.p.h. in a car without discomfort is no mean feat, but to turn the ploughland of nine months ago, and that broken by many hedges and tree-stumps of remarkable tenacity, into such a vast open space borders on the stupendous. Yet all this and more has been achieved by the firm of James Hunter Ltd. of Chester, whose managing director, Mr. C. P. Hunter, is among our best-known private owners.

About Oct. 15, last year, the present writer went to see the raw material of what is the truly amazing new aerodrome of the Fairey Aviation Co. Ltd., which is close to the Bath Road, near Harmondsworth. As visitors, air-borne or otherwise, to the Heston Air Park of Airwork Ltd. (another Hunter-built aerodrome) will remember, the country round is very flat. Flat that is as regards topography as opposed to surface. A result of the flatness is the need to drain away the water.

When one arrived the first thing that attracted the attention was an ingenious tree-extracting winch. This machine James Hunter Ltd. have acquired for their flatness-producing operations and modified as their experience has proved necessary. The winch is mounted on a tractor and is driven at about 80:1 reduction by a train of gears.

The winch and tractor are firmly fixed in position and the steel cable from the drum is hitched around the recalcitrant stump. The engine is thrown into gear with the winch,—and that is that.

As the winch can be placed a very considerable distance, two or three hundred yards away, from the hedge, a whole row of stumps can be up-heaved without shifting the winch, and the operation only requires the attention of a man at the winch and some casual labour to fasten the cable round the stumps and loosen the earth about a particularly stubborn root.

But this winch has more than one use. It is particularly effective for digging trenches. Large coulters with arrow-shaped cutting-edges are drawn across the field by the winch and a deflector which is towed behind the coulter turns the removed material to either side of the cut. A succession of coulters will provide any depth of cut.

A pipe-laying device is also towed by the winch and this will lay pipes more or less automatically behind the coulter which is taking the last cut. Instruments of this kind have been developed by Moxons Ltd.

All these instruments and others were described in the "Air Park Supplement" in The Aeroplane of Oct. 30, 1929.

When the drains have been cut and filled in with cinders or pipes the surface has to be levelled, and this is done with scarifiers, disintegrators or what-nots which tear up the ground and what was heretofore growing on it and spread the soil smoothly. Graders are also used for this work. Drags are employed to remove stones and so on.

Machinery assists James Hunter Ltd. to a surprising degree. Very few men are employed as the larger part of the work is done with tractors and the apposite brand of instrument which is thereby towed.

Mr. C. P. Hunter very naturally is somewhat of an expert on grass and its infinite variety. Last year, in The Aeroplane's Air Park Supplement, some of Mr. Hunter's recipes were published. His skill in selection is amply demonstrated on the new aerodrome which has only been sown three months and is now completely green-carpeted,—150 acres of it. This area will soon be increased to 180 acres, as another 30 acres are now being surfaced and completed.

On Aug. 15 of this year one again visited the site and was astonished at the aspect of what so short a time ago had been small fields with numerous intersecting hedges. Now the whole is one green plain with a diagonal of one mile less 300 yards. That the smoothness was no illusion we sooned learned by being rushed in Mr. Hunter's excellent super-charged Mercédés across the expanse at well over the take-off speed of a Moth. Part of the aerodrome, for the purpose of a demonstration which was to follow had been left unsown, though levelled, and this was a forest of weeds, which over the drains were a yard high. The Merc. continued its wild career through these, still without hitting any bumps. [Actually one member of the Staff of The Aeroplane was transported at over 70 m.p.h. in this car on a Hunterised aerodrome.]

One of the difficulties with which Mr. Hunter has had to contend is that of drainage. When one inch of rain falls on that aerodrome there are some 20,000 tons of water to be dealt with, and that figure should give people an idea of what the drains have to handle. As well as the main drains, which deliver to the River Crane and Duke of Northumberland's River, there are 60 miles of mole drains.

Mole drains are made by a specially shaped coulter which is mounted on a thin blade which cuts through the ground vertically leaving little trace; although the coulter, which is of cylindrical section, is boring a useful tunnel beneath the

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ground. These mole drains are put in when the surface has settled down and has become flexible enough to have the mole-drainer dragged through it without doing material damage by dragging up the soil.

The afternoon the writer was there a demonstration of a super-mowing machine was given. This was a battery of seven cutters towed at a high speed behind a *Pennsylvania Tractor* which has been specially developed by Lloyds and Co. (Letchworth) Ltd. for such work. These gang-mowers working 8 hours a day can mow the 180 acres in 2¾ days, which is good going. Although they can cut really close to to the ground they can be adjusted to leave 5" of growth. The cutting width of this "Septuple" is 16 ft. 6 in. which is a useful sort of cut.

People interested in the maintenance of aerodromes would do well to get into touch with Mr. Malleson of Lloyds and Co. (Letchworth) Ltd. at Pennsylvania Works, Letchworth, as he will be able to help them a lot with their problems of grass-cutting.

Quite apart from his work of building air parks, aerodromes and golf courses, one gathers that Mr. Hunter has a busy time looking after landing fields for the private owner. A rather luxurious case in point is Mr. Lindsay Everard's new field at Ratcliffe. One quite understands why private owners ask Mr. Hunter's aid, there is a definite advantage in having to help one a private owner who has built his own private landing ground.—T. J.

AN ARENAUTICAL EXPERIENCE.

There is nothing really new under the sun, but the novel effects which combinations of old ideas sometimes produce almost persuade one otherwise. On Aug. 14 a gathering of the interested and curious examined the Arens-controlled Puss-Moth at Lewis and Barnard's, Heston. They also pushed and pulled at a fascinating variety of demonstration set-ups, and registered amused admiration at the simplicity and effectiveness of it all.

Of old one's bicycle brakes, if any, were sometimes operated by a cable running in an non-compressible but flexible tube. Nine out of every ten amateur snapshotters use a similar principle for their shutter-release, except that it transmits a push instead of a pull. Mr. Arens, an American mechanic previously unknown to fame, combined the tension cable and the incompressible tube and put them inside a metal tube with a good sliding fit and thus produced a medium that transmits both pushes and pulls with surprisingly little friction and no play at all.

Mr. Freeman, who is Managing Director of Arens Controls Ltd., had provided a board with plenty of knobs for his guests to pull,—or push, as their fancy dictated. The ease with which the remote end moves in and out of the tube, which is led in complicated convolutions across the board, is surprising.

The real centre of attraction was, however, the Puss-Moth, G-AAXW, in which Mr. Charles D. Barnard recently made his historic flight to Malta and back. It is the only aeroplane in Europe with Arens flying controls. Mr. Barnard took up several interested parties, including Lord Strickland, Governor of Malta, and his daughter. Not to be outdone, Mr. Frederick Montague, M.P., led up a daughter, albeit a much smaller one, and took a ride in the very turbulent atmosphere. His older son and daughter had already had their baptism of the air in this same machine at Croydon as a Bank Holiday treat on Aug. 4.

The difference due to Arens controls is hardly to be judged from looking on, so Mr. Barnard kindly had the second stick put in for the representative of The Aeroplane. The wind was exceedingly strong and very gusty, so that the air was in the least desirable state for ordinary flying. The leaping and bucking seemed strangely incongrous in the sunlit conservatory of the Puss-Moth. One has been plentifully bumped in cabin machines before, but never felt quite so insulated in the midst of rockings and buffetings.

After a few moments the real reason became clear, and proved that no day could be more suitable to demonstrate Arens controls. Ordinary cable controls never fail to develop some slack, and in rough air this slack is taken up or let out by the pressures on the control surfaces in a way that produces a constant kicking of the stick. The instinct is to fight the bumps, which develops more slack.

The controls of G-AAXW seem to be absolutely unaffected by bumps; hence the strange feeling that the air is quiet in spite of vigorous proof to the contrary. The main reason is probably the absence of any slack whatsoever, which makes back-lash impossible; and a contributory cause may be the damping effect of the long sliding contact of the cable in the tube. But there is little, if any, extra mechanical weight on the controls.

Push-and-pull rods are already recognised as a distinct improvement on free cable gear except that they cannot be led round pulleys to conform to structural necessity. Bell cranks are cumbersome and complicated. The Arens control has several advantages over the rod besides the outstanding one that it can be taken round, over or through obstructions without loss of efficiency.—F. D. B.

LODGE PLUGS IN R.100.

As so many of the passengers on board the airship remarked when the R.100 moored at Cardington after her return Atlantic-crossing, the remarkable thing about the trip was its lack of incident. This is excellent, for routine transport should not provide thrills. To this regular running the Lodge Plugs in the Rolls-Royce Condor engines contributed, by their reliability.

ENTERPRISE IN POLAND.

Attention was drawn in The Aeroplane of Aug. 6 to the enterprise shown by the famous Smith's Aircraft Instruments branch of S. Smith and Sons (Motor Accessories) Ltd. in showing at the Exhibition at Poznan. The Poles, so far as things aeronautical are concerned, have been rather Francophile, but lately their attitude has changed. There is a distinct feeling in favour of British products and Smiths are certain that British firms lost a great chance in not exhibiting. As this paper pointed out, Smith's was the only British firm in the aircraft section.

The firm's Polish agent has just sent them a letter, an extract of which appears hereafter:—

I confirm my cable yesterday from Poznan reading as follows:—*You have received second Government prize, Diploma of Honour, Poznan Exhibition.—Frank.*

There were altogether 1,150 exhibitors. Government prizes were divided between 100 firms, namely, 80 firms received the "Grand Prix" and 19 the "Diploma of Honour," of which you are the seventh.

After this gold, silver and bronze medals and letters of approbation have been divided amongst 229 firms and the remaining exhibitors have received nothing.

The stand during the exhibition has been visited by practically all the heads of the various concerns and departments in Poland interested in aviation and every one of them has shown interest in the exhibits.

We are now following up all inquiries and hope that we will soon be able to commence negotiating for orders.

K.L.G. SERVICE.

In obedience to the firm's slogan one fits and forgets K.L.G. sparking plugs, but some performances hereinafter mentioned are fitter not to be forgotten.

Comment has already been made on Mr. Thorn's excellent performance in the *Challenge de Tourisme International.* Mr. Thorn's machine was awarded full marks for regularity and this machine as well as a Polish R.W.D.4. (Hermes engine) gained full marks in the petrol consumption test with the carburetter-setting normal and as used throughout.

Cirrus Aero Engines Ltd., in writing to K.L.G. Sparking Plugs Ltd., said:—

The fact that a Hermes engine was fitted in one of the first three machines to finish the Tour, and that two Hermes-engined machines gained full marks for regularity and fuel consumption is extremely satisfactory, and of course the K.L.G. Plugs gave the high efficiency that is only to be expected of them.

Recently Mr. Bernard Wilson flew 5,500 miles on a journey to Baghdad and back in 62 hours' flying time. His machine was a Desoutter with a Hermes engine and K.L.G. Plugs.

COLONIAL ORDERS FOR AERODROMES.

The Crown Agents for the Colonies have placed contracts for the supply of structural work for two steel-framed buildings to be used as aeroplane sheds on the Cape-Cairo route of Imperial Airways which is to be opened next year, with the Tees Side Bridge and Engineering Works, Ltd., of Middlesborough.

One shed, 243 ft., by 116 ft. by 30 ft., is to be used for both land and seaplanes at Kisumu on Lake Victoria, and the other, 123 ft. by 90 ft. by 30 ft., is to be erected at Broken Hill in Northern Rhodesia. Both buildings will be provided with protective metal roofing made by the Wolverhampton Corrugated Iron Co., Ltd., of Ellesmere Port, near Birkenhead.

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MANY INVENTIONS.

Imperial Airways Ltd. had about 60 to 70 crates of barn-door fowls for despatch from Croydon by air recently. These feathered songsters, whose estimated vocal potency was about ten thousand ohmlets, made the local welkin ring to such an extent that the Control Tower wanted them fitted with some sort of silencer, owing to the welkin becoming thoroughly unsuitable for wireless communication. The violent crowing of the male members of this poultry congress moreover suddenly awakened certain harmless office people with a start at hours such as 3.30 p.m., thus giving them the impression that it was then the crack of dawn, or cockcrow the day before yesterday, and that they had neglected to awaken with the (noontide) lark as usual and slip across for a quick one. Incidentally members of the staff found that by stealthily approaching the crates from behind and clucking, they could induce somnolent pullets to lay eggs under the impression that they (the pullets) had done the clucking.

Another queer cargo carried by Imperial Airways was a consignment of steam pressure valves from Manchester to Oslo where they were urgently required by a Whaler in the harbour there. It is supposed that the whales were to be fitted with these valves in order to counteract that annoying habit of the cetacean, who as soon as the bloke in the crow's nest shouts "Blimey boys, there she blows" is accustomed to dive under the whaler and blow off steam with such ill-regulated violence that the whole outfit is blown some 20 feet into the air, usually just as the skipper is taking the first bite out of his tea-time kipper. Fitted with Manchester-made steam-pressure valves the whale can merely make a feeble display similar to the hot air emitted by the chairman of a committee of welcome to a famous aviator or aviatress, which so surprises the monster of the deep as a rule that he comes alongside quietly to be harpooned.

Another miracle of modern science perpetrated by Imperial Airways also was when they conveyed the first ripened cotton plant complete with roots, branches and foliage from Egypt to Manchester so that cotton-spinning magnates could estimate what sort of crop they might expect. Placed in the Palm Court of the Midland Grand Hotel and surrounded by smiling magnates the cotton plant, responding to violet rays and the invigorating air of Manchester, is said to have burgeoned and blossomed into delicate clusters of gents' cotton pants and vests amidst loud cries of "Eh bai gum lad, yon's grand, it is and all!"

Finally, just to show what really could be done in the matter of carrying quaint cargo, Imperial Airways took a B.B.C. Uncle to Birmingham and flew him over the city between 9.0 p.m. and 10 p.m. when he gave a vivid description of the beauties of the city by moonlight. In order to keep engine noise out he was fitted with an ordinary dentist's gas mask, and through some oversight, nobody thought of connecting him up, when thus masked, with a cylinder of laughing gas. The broadcast, which was highly successful, was a surprise item, but it would have been a more surprising item still if nothing had come through but giggles and roars of hilarious laughter, especially as Birmingham by moonlight cannot possibly be screamingly funny from the air. The Uncle was returned to Croydon the same night by air, landing about 01.00 hrs.

One day last week K.L.M. brought from Rotterdam by air some vitally important ship's documents which had been left behind by a liner due to said from an English port and without which the vessel could not sail for New York. It's the poor wot 'elps the rich.

Mr. van Dyk, the K.L.M. pilot is starting air line work with K.L.M. again in spite of many tempting offers from America. He will be the first K.L.M. pilot to reopen the Holland-Netherlands Indies line in October next and will probably concentrate on long-distance flights of this sort for K.L.M. in future, so far as possible.

What a thing it is to start writing to the papers on aviation matters on insufficient grounds. Only the other day a certain Lootenant Commander was accused of advancing, in all seriousness, a theory that an aeroplane hit a tree and wrenched its tail off in a recent accident. Worse, he was accused of it in the gossip columns of a daily pictorial, which seems an entirely miserable fate for a gallant officer. The result will probably be that such bodies as the Royal Botanical Society will ask him to lecture on the rarer flora of the Kentish hills with especial reference to trees, deciduous or coniferous, which he has observed growing to 800 or 1,000 ft. high in those parts. He may even be decorated too, with the ancient and honourable insignia of the Botany Bay Leaf (third class, corner seat.)

It is an ominous fact that since last week the Air Ministry loud speaker in the main hall has been removed from its perch. We trust it will acquire no bad language in its absence and that all its conversation will be in an Oxford accent on its return.—Spry.

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New York Evening Sun,
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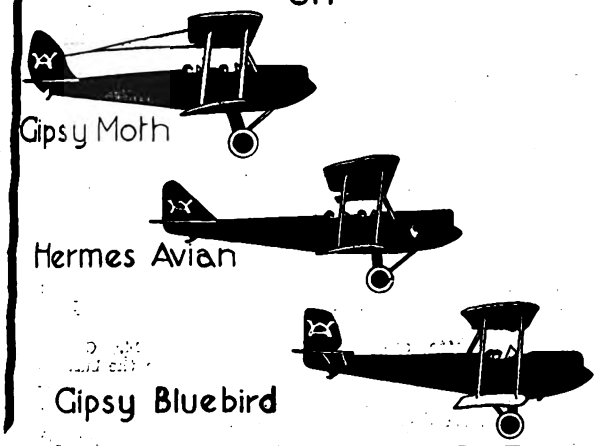

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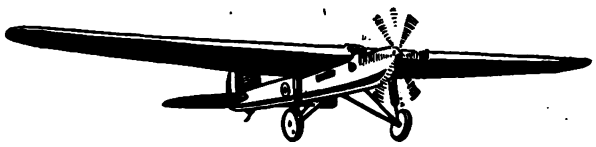

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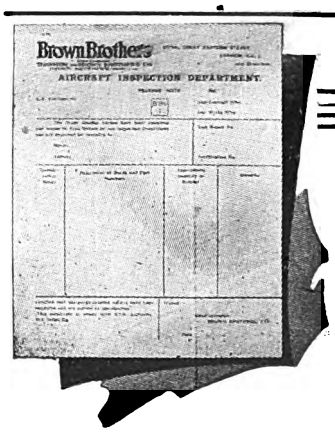

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"THE SAILPLANE AND GLIDER."

Last week THE AEROPLANE announced that it had decided to deal with the gliding and soaring movement in a separate publication, to be called THE SAILPLANE AND GLIDER.

About a year ago THE AEROPLANE revived the gliding movement in this country by publishing a number which was chiefly devoted to gliding and by organising a lunch at which the existing British Gliding Association came into being. Although we of THE AEROPLANE hoped that the new gliding movement would develop into a serious effort to use sailplanes as a means of studying air-currents and aerofoils this line of development has not gone far. But gliding as a much glorified form of toboganning, purely as a sport, has made considerable progress. And the gliding movement has shown by results that it can teach *ab initio* pupils to gain some proficiency in the control of aeroplanes. There are already a number of people previously ignorant of aviation who have been taught to control gliders in sustained flights.

Nevertheless, gliding for sport is so far removed from actual flying, which is the science, trade or sport for which THE AEROPLANE exists, that we cannot spare space in this paper to deal with it. Every inch of space given to gliding deprives buyers of this paper who are not interested in gliding of information which is of direct interest or importance to them. And they resent it. Hence the decision to start THE SAILPLANE.

The price of THE SAILPLANE AND GLIDER has been fixed at *threepence* per copy to meet the pockets of the younger generation. And because the price will not stand any trade discounts THE SAILPLANE will be sold by subscription only. It will therefore only be obtainable from this office. The subscription rate will be three shillings for three months post free. A single copy may be had for 3½d.

As the number printed will depend on the number ordered, those who want copies are asked to let us know as soon as possible as there will be none available for those who fail to order beforehand. Orders should be addressed to THE SAILPLANE, 175, Piccadilly, London, W.1.

THE SAILPLANE will be entirely dependent on the reality of the gliding movement. If gliders and soarers want it we shall continue to produce it. If support is not forthcoming we shall drop it.

THE SAILPLANE will give its readers all the news of the various gliding clubs and of the latest developments in gliders and their technique all over the World. At first the paper may be only a pamphlet, but if the movement soars to the heights to which its supporters aspire then the paper which is to be devoted to that movement will soar with it.

IMPORTANT DATES.

Aug. 30.—Liverpool-Manchester Air Race for Cundiff Trophy (Displays at Hooton and Barton).

Aug. 30.—Bedfordshire Aero Club Display, Goldington.

Aug. 30.—Air Fete and At Home at Cramlington (Newcastle).

Sept. 1—6.—International Congress on Air Navigation at The Hague.

Sept. 6.—Official opening of Mr. Lindsay Everard's private aerodrome at Ratcliffe, Leicester, and the race for the S.B.A.C. Challenge Cup, for Light Aeroplane Clubs.

Sept. 6.—Bristol Air Garden Party to the British Association.

Sept. 27.—Air Meeting at Hanworth.

Nov. 28—Dec. 14.—International Aero Exhibition in Paris.

NEW COMPANIES.

BROWN AVIATION COMPANY LIMITED.—Private company. Registered Aug. 8. Capital, £500 in £1 shares. Objects: To manufacture, repair, buy, sell and deal in balloons, aeroplanes, hydroplanes and airships of all kinds and all component parts, fittings, and accessories; to provide and erect aerodromes, landing stations, buildings and sheds, etc. The directors are: E. Brown, 93, Ormerod Road, Burnley, motor dealer; Mrs. H. Brown, of same address. Registered office: 3, Parker Lane, Burnley.

HELICOPTER LTD.—Private company. Registered Aug. 14. Capital, £100 in 24,000 shares of 1d. each. Objects: To carry on the business of designers, builders, fitters, proprietors and letters on hire of aeroplanes, hydroplanes, airships, seaplanes, flying-boats, motor-boats, launches, motor-cars, motor-cycles, lorries, etc. The directors are: Capt. V. V. Dibovsky, C.M.G. (permanent director and chairman), 118, Bayham Street, Camden Town, N.W.1, aeronautical engineer. S. Boone, 500, Archway Road, Highgate, N.6. Secretary: S. Boone.

POBJOY AIRMOTORS LTD.—Private company. Registered Aug. 14. Capital, £8,400 in 6,400 10% non-cumulative preference and 1,600 ordinary shares of £1 each and 8,000 founders' shares of 1s. each. Objects: To adopt an agreement with D. R. Pobjoy to manufacture, deal in and repair aeroplanes, seaplanes, hydroplanes, airships, steam and motor ships, launches, boats, motor-cars, etc. The first directors (to number not less than 2 nor more than 7) are: D. R. Pobjoy, Edgworth, Minster-on-Sea. I. C. Maxwell, Farlie House, Beauly, N. Britain. The above directors are entitled to hold office for five years. Solicitors: Lovell, White and King, 5, Thavies Inn, E.C.1. Registered office: Hooton Park, Wirral, Ches.

MORTGAGES AND CHARGES.

CELLON LTD.—Particulars filed of £10,000 debentures authorised July 29, 1930, the whole amount being now issued. Property charged: Properties at Ham and Richmond; and the company's undertaking and property, present and future, including uncalled capital.

PERSONAL NOTICES.

DEATHS.

CRAWFORD.—On Aug. 10, in the Isle of Wight, of pneumonia, Wing Cdr. S. C. R. Crawford, O.B.E., Department of the Judge Advocate-General.

KINGSFORD.—On Aug. 15, at Abu Sueir, Egypt, as the result of a flying accident, Eric Tennant (Lieut., Prince of Wales's Volunteers, attached R.A.F.), elder son of Edward and Evelyn Kingsford, Moor Hill, Hindhead, Surrey.

STEVENS.—On Aug. 12, at 81, Palace Road, S.W.2, Winifred Mary, the beloved wife of Flg. Off. Norman Stevens, R.A.F., retd.

MARRIAGE.

APPLETON—HARDING.—On Aug. 12, at Lyndhurst, Charles Henry Appleton, R.A.F., son of the late Capt. Henry Appleton, of Hanburies, Bishop's Frome, to Yvonne Marjorie Harding, daughter of the late Ivan Cotter Harding, of Castel Aly, St. Servan-sur-Mer, France.

FORTHCOMING MARRIAGE.

NOBLE—PULLEINE.—A marriage has been arranged, and will shortly take place, beteewn Cecil Hyatt Noble, R.A.F., fourth son of Mrs. A. Noble, of Clifton, Bristol, and Eugenie Louise, third daughter of Dr. and Mrs. R. Pulleine, of Adelaide, South Australia.

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All advertisements for this column should arrive at this office by first post Monday, to ensure insertion.

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Special PREPAID Rate—18 words 4/6, 3d. per word after; 13 insertions, 18 words, 4/-; 26 insertions, 18 words, 3/6; 52 insertions, 18 words, 3/-, 2d. per word after. Situations Wanted ONLY—18 words 1/. Box No. 6d. extra.

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National Flying Services Ltd. (See page 471.) Quick deliveries of all types, new or second-hand. Unrivalled service.

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Wanted Urgently, Cirrus or Gipsy-Moth. Phillips and Powis Aircraft (Reading) Ltd., Reading Aerodrome. Sonning 114.

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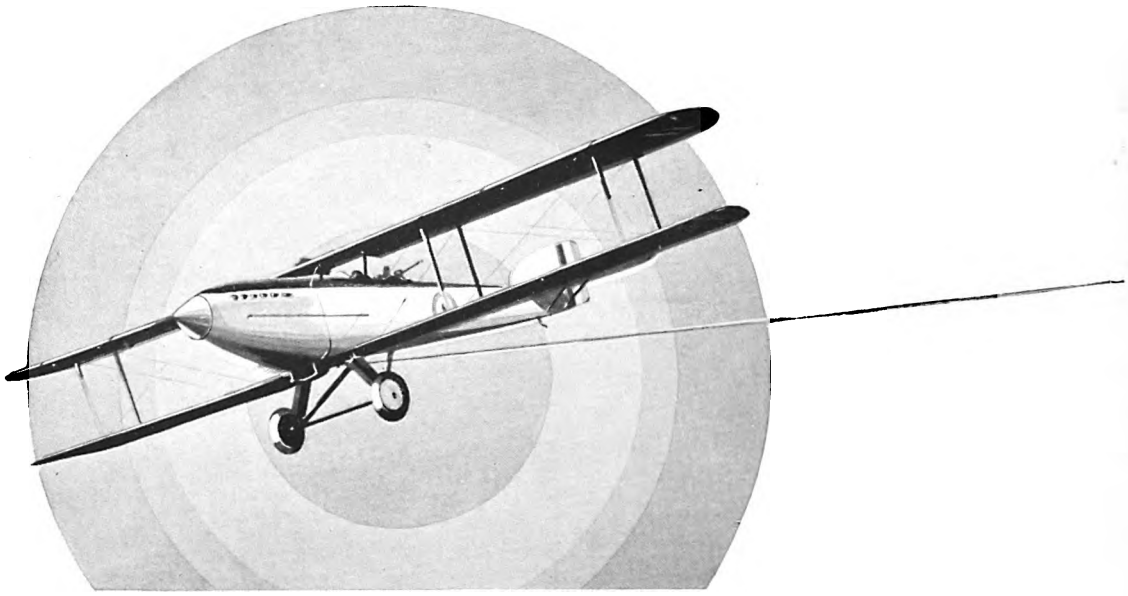

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ON BRIDGING THE ATLANTIC.

According to reports from Canada, which have not been made prominent in the British Press, Sir Dennistoun Burney, the creator by the grace of Vickers Ltd. of the *R.100*, has made a straight offer to that wealthy Dominion to run an airship service with four ships between Canada and England on a capital sum of £6,000,000.

According to reports from Australia, which have been made very prominent in the British Press, the enterprising city of Sydney, New South Wales, the biggest city in Australia though not the capital of the Dominion, has just finished, or at any rate has joined up the last spans, of a road and railway bridge across Sydney Harbour which has cost the city the sum of £6,700,000.

Now, if one city in Australia can spend £6,700,000 in bridging its harbour merely to speed up traffic between the various parts of the city and its suburbs, surely Canada, with 50% more population than the whole of Australia put together, and five or six times the population of Sydney, can spend £6,000,000 on bridging the Atlantic.

Canada's answer to the proposition will be awaited with interest. Canadians are nearly enough of the same breed of Britisher as the people who matter in the United States not to be scared of taking a risk. And the risk of financing an airship service across the Atlantic to-day is nothing like so great as was the risk of financing the Canadian Pacific Railway, or the Canadian Northern, in the days when Lord Strathcona was making his pile and earning his title. In fact the gamble is probably not so great as was the cement merger out of which Lord Beaverbrook earned for himself in Canada the nickname of "the concrete peer."

The Driving Force.

Dennistoun Burney is a good talker, but he is not what in these days of expressive slang is called a hot-air merchant. At times he may sound too optimistic, but in the end he does what he set out to do. Any delay there may be is caused by the lamentable fact that whatever a man may set out to do he is dependent on the work of others and on the decisions of others,—and few people in this World are 100% efficient. To use the modern mixed metaphor again,—there is no harm in a man shooting a line if he delivers the goods because of it.

People laughed at the Burney Paravane early in the War 1914-1918, but he made it work, and it saved millions of pounds' worth of ships and cargoes, and some thousands of lives. And his reward for it was something in the nature of £300,000. If he can persuade Canada to bridge the

**"FAR AS THE BREEZE CAN BEAR, THE BILLOWS FOAM,
"SURVEY OUR EMPIRE, AND BEHOLD OUR HOME."**

(Byron—*The Corsair.*)

£6,700,000 WORTH IN THE MAKING.—Sydney's giant bridge, which has just joined up,—with a Moth looping in the fore-air.

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Atlantic and will show Canada how to do it he will deserve ten times as much.

Naturally nobody, least of all Sir Dennistoun Burney, expects the Canadian Government to hand out £6,000,000 and say "Go to it." The job must take several years,—though probably not as many years as were taken over Sydney's bridge. And a consideration of how to set about it is worth while.

A Plan of Campaign.

In the first place, in spite of all her defects, R.100 got to Canada and back safely. And the things that went wrong rather confirmed the soundness of the general design of the ship.

For example, the torn and flapping fabric did not damage the framework of the tail at all. And the piece that flew off an engine and punched a hole in the main boom of a girder big enough to put a man's fist into did not cause the girder to collapse. And the petrol tank which fell out when the ship was at the mast at Cardington after coming home was forced adrift by a piece of gross carelessness which only emphasized the soundness of the broken fitting for its job when properly used.

As Major Teed pointed out in his article last week, a great deal has to be done to improve the envelopes and gas-bags of airships. As further proof there is the fact that the envelope of R.101, the Government-built ship, was ripping to pieces at the mast without going anything like as far as Canada and back. In fact the whole ship is being re-covered while the new bay is being put in which is to allow her to lift her own engines and enough oil to run her to Egypt.—Incidentally, in spite of Lord Thomson's optimistic statement that he is shortly going to India in R.101, there are several people who are looking for a chance of betting that her first voyage will only be to Egypt and, with luck, back.

But R.100 has proved herself quite good enough as she is to use for experimental work in Canada. And remember, before a trans-Atlantic service can be run, at least a year must be spent in experimenting with an airship in Canada, so that those who are to operate the line may find out exactly how the climate of Canada affects an airship at all seasons.

Local Conditions.

These storms which (according to the Press) shoot an airship up 2,500 ft, in a couple of seconds (approximately a climbing rate of 1,000 miles an hour) have to be studied. Also the operators will have to find out whether snow lies on an airship and is liable to bear it down to the ground when cruising or when at the mast. And they have to find out whether fog turns into ice, with similar effect,—as it has been found to do on aeroplanes, between certain latitudes only, in the United States. Such experiments would not be very costly.

If one remembers aright, the Airship Guarantee Co. Ltd. who built R.100 have the option of buying her back from the Government for a moderate sum. So presumably if Canada will put up that sum for a start the ship can go to Canada at once and do her experimenting during the coming Winter.

And in the meantime Canadian energy and enterprise can probably run up a cheap shed at St. Hubert to house her well enough to allow repairs to be done whenever the experimental flying breaks or bursts something that cannot be repaired at the mast.

Good Reasons.

There is every reason why Canada should come in on the deal at this stage. Although R.100 is the first airship to link up a British Dominion with the Mother Country, and although she was taken to Canada and back by an Air Ministry crew, she is very much a Cinderella at Cardington. She is not the child of the Royal Airship Works, she is an interloper. And, quite evidently, if the design and construction of R.100 is right then R.101 is wrong. Therefore we can hardly expect the personnel at Cardington to regard her with affection and esteem. And consequently she can be put to better use somewhere else.

No doubt the designers of R.101 will profit greatly by the experiences of R.100, and by having her on the spot to study. But to expect them to scrap R.101 and design a new ship on the lines of R.100 would be asking too much of human nature. In fact, the position is very much that in which the British Aircraft Industry and the Royal Aircraft Factory at Farnborough were between 1913 and 1918.

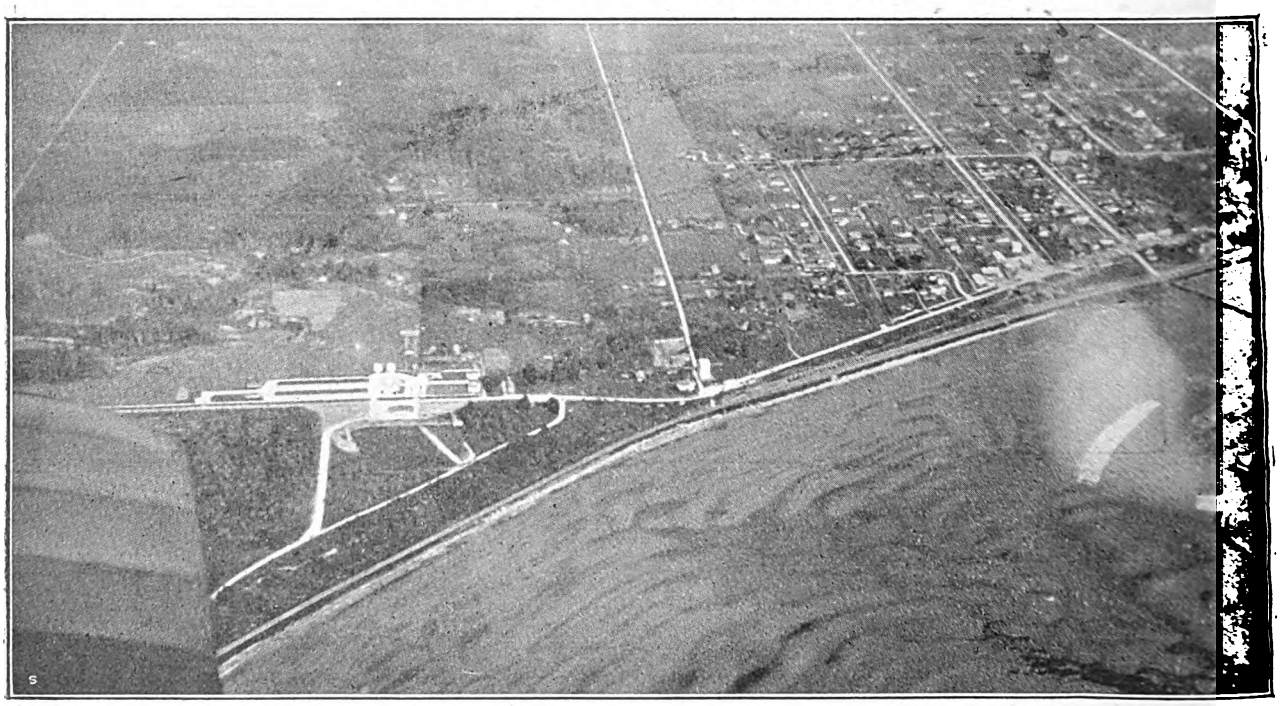
Even when the people at the Royal Aircraft Factory were behaving quite honestly in turning down a Trade design and pushing their own type nobody in the Trade believed them. And if R.100 is ultimately broken up by accident, or by carelessness, as in the matter of that petrol tank, people who do not happen to be Socialists, and who dislike the idea of vital Imperial progress being left in the hands of a Government factory, are bound to start talking about *sabotage* and deliberate neglect, as they did about Farnborough fifteen years ago.

If the people at Cardington are wise they will do everything they can to get rid of R.100 at any price. Then they can go ahead with the progeny of R.101 with clean hands and clear consciences. Whereas if they do not she will remain at the mast a kind of cross between Jonah's Whale and the Sword of Damocles.

Canada's Opportunity.

On the other hand, if Canada should take her over we shall enter into a state of healthy competition between the Anglo-Canadian group with the Burney ships and the Anglo-Indian (one nearly wrote Anglo-Ghandian) group with the Cardington ships. And then we shall get progress at four times the rate possible with one Government establishment doing its conscientious best to be just to two entirely opposed styles of design, both in ships and engines.

Long before the suggested £6,000,000 can be spent the Airship Development Co. Ltd. plus the Canadian Government can have four ships of 10,000,000 cubic feet apiece running regularly across the Atlantic in all weathers,—at



AN IMPERIAL BOUNDARY.—On the right, the North-West Corner of the United States. On the left the South-West Corner of Canada. The straight white road is the Frontier. The foreground is the sea-coast. The photograph was taken by Mr. E. B. Wilshire, Chairman of the Aero Club of New South Wales, a few months ago in the course of a flying tour from Los Angeles to Vancouver.

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The R.A.F. trust the NAPIER

"FIVE Supermarine 'Southampton' flying boats (Napier 'Lions') appeared over the aerodrome across which they 'sailed' majestically in Squadron V, their 'Lions' purring with pride. They were from No. 201 Squadron and had flown up from Calshot.

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any rate in worse weather than any seagoing ship could face. And we can have direct communication with Montreal, Toronto, and Ottawa during those months when the St. Lawrence is closed by ice.

Actually, building four ships at once, they should not cost more than half a million pounds apiece. So the other four millions should be ample for building sheds at headquarters in Canada and masts in various parts of the Dominions, and for running experimental trips all over Canada from Newfoundland to Vancouver.

Canada was far more thrilled by the visit of R.100 than England is ever thrilled by anything. Even if we had won the Test Match (Note, for Readers in other countries:—This refers to a curious English game called Cricket, in which eleven Englishmen were recently completely annihilated by eleven Australians, with a resultant depression in this country which was deeper than those of Iceland and Wall Street put together) we should not have been so enthusiastic as were our Canadian, and many of our American relatives, over R.100.

The more far-seeing people in Canada understand that here is a direct link with England. It is in fact quicker than if we had a real bridge or tunnel along which trains could run. It means that London will be closer to Montreal than New York is to San Francisco. An airship service of this sort will not be merely a flying bridge across the Atlantic, it will be a flying buttress to the Empire.—C. G. G.

PLYMOUTH—LISBON NON-STOP.

In a series of articles on The Importance of Portugal, which were published in this paper in March last, attention was drawn to the possibilities of Lisbon as the first port of call for a mail service of big flying-boats to South America and South Africa, and to our Eastern Possessions by way of Gibraltar.

The workableness of such a service was demonstrated on Monday, Aug. 25, when a Blackburn Iris flying-boat (three Rolls-Royce Condors) flew from Mount Batten (Plymouth) non-stop to Lisbon in ten hours. The official account of the journey will be found in its proper place in the Royal Air Force section of this issue. Trade Follows the Flag, and the more the Royal Air Force shows itself, and the products of the British Aircraft Industry, all over the World the better trade will be, and the more employment there will be.—C. G. G.

OPPORTUNITIES IN NEW ZEALAND.

New Zealand, by its remoteness from the middle of the Empire, is apt to be regarded as off the flying map of the World. Even the long-distance people who fly to Australia somehow seem to prefer the boat to New Zealand. This is natural enough, considering the thousand odd miles which separate them.

Within the Islands, however, aerial activity is present and on the increase. Mr. F. Lysons, secretary of the Hawera Aero Club, is in England on business, and he gave encouraging reports of progress there.

Five light aeroplane clubs are now in training, eight more are forming and ready to start. They receive a subsidy of one machine to begin with, £25 per qualified *ab initio* pilot (with a limit of 20 pilots per year), and a second aeroplane later. The West Coast clubs are federated into an organisation of their own.

The New Zealand Air Force is a defence force of nine officers and 40 other ranks, and the total of Government-owned aircraft is 18.

The one matter which the New Zealand enthusiasts find discouraging is the inadequate representation of British manufacturers. Agents for British light aircraft do not seem ready to pick up the business waiting for them among the clubs now forming, and the American Trade is, as usual, clamouring at the door with every inducement to buyers. Such a condition is altogether too heavy a strain on patriotism, and, as Mr. Lysons is going home through the United States, and already has numerous invitations from manufacturers, one rather despairs of British business with his club.

He has been invited to fly numerous American makes, and some of them fly very sweetly and convincingly, and any who know the persuasive U.S. salesman on his native heath will know exactly what to expect—and no blame to Mr. Lysons.—F. D. B.

THE LOAN OF AN ENGINE.

In the House of Commons recently in reply to a question by Sir George Hamilton, the Under-Secretary of State for Air said that the application by the Australian Government for the loan of an engine related to a 1,200 h.p. and not a 2,000 h.p. engine as stated. As such an engine was available, the loan of it had in principle been approved, subject to the fulfilment of certain conditions as regards payment of freight, insurance and reconditioning charges.

A SENSIBLE TRANS-ATLANTIC FLIGHT.

At 13.45 hours (Standard Eastern Time) on Aug. 24 Herr Wolfgang von Gronau alighted in Queensport Harbour, Guysborough County, Nova Scotia, from Germany and has thus added one more Atlantic crossing to the rapidly growing list of such flights. But this time the journey was a properly organised stage-by-stage flight in a big seaplane along more or less the route followed by the U.S. Army Round-the-World aviators in 1924, and not a hit-or-miss dash in a land machine like most of the trans-Atlantic efforts. His success is a worthy reward for German organisation, efficiency, airmanship and seamanship.

Herr von Gronau is the director and chief instructor of the seaplane division of the Deutsche Verkehrsfliegerschule, —the official German training establishment for commercial pilots. The chief seaplane training base is at Warnemünde and, from the lack of information, we may presume that Herr von Gronau left Warnemünde for his flight in a multi-engined flying boat of the type used for long over-seas flight training.

From Warnemünde he flew to Reykjavik in Iceland. He left Reykjavik on Aug. 22 and flew to Ivigtut in Greenland, where he arrived the same afternoon.

From Ivigtut he flew to Cartwright, Labrador, where he alighted after noon on Aug. 24. He left Cartwright after refuelling to continue his journey to New York, but for some unknown reason he alighted in Queensport Harbour, Nova Scotia, shortly after.

Herr von Gronau was an officer in the Imperial German Navy and Naval Air Service and during the War 1914-18 he served in the North Sea both with the High Seas Fleet and the North Sea Flying Division. Last year he made several flights across the North Sea from Germany in a Dornier Wal, notably to Iceland and to various ports in the British Isles.

TRANS-AMERICAN RECORDS.

On Aug. 13 Mr. Frank Hawks beat the West-to-East record across the United States by flying from Los Angeles to New York in 12 hrs. 25 mins.

He left Glendale Air-port, Los Angeles in a Travel-Air monoplane at 06.15 hrs. (New York time) and after stopping at Albuquerque, Wichita, and Indianapolis, he reached Curtiss Field, Long Island, New York, at 18.41 hrs. His actual flying time was 11 hrs. 40 mins. which gives him an average speed of 214 m.p.h. for the 2,500 miles covered. He beat the previous record made by Col. Charles Lindbergh on April 20 last by nearly 2½ hours.

On Aug. 6, Mr. Frank Hawks flew from New York to San Francisco in 13 hrs. 38 mins. at slightly over 200 m.p.h. and beat the previous record for the East-to-West flight across the United States set up by Mr. Roscoe Turner in May last by over 5 hours.

This flight was reported in The Aeroplane on Aug. 13, when, for lack of reliable information, the suggestion was made that Mr. Hawks used a Lockheed monoplane. In these last two records of Mr. Frank Hawks's "It has taken a Travel-Air to beat a Lockheed," and one apologises to both the Travel-Air and Lockheed companies for innocent misrepresentation.

DOING ITS DUTY.

The flying of heavier-than-aircraft from East to West across the Atlantic is giving protectionist America cause for anxiety.

The U.S. Bureau of Customs has asked the Department of Commerce to call a conference to clear up the confusion which now exists about the entry into the United States of foreign aircraft other than by sea transport, or presumably over the Canadian border.

Investigation is now going on concerning the status of the Dutch-built, American-engined and polyglot-piloted *Southern Cross*. Hitherto all aeroplanes that have landed in the United States after successfully completing trans-oceanic flights have been treated as special cases to which the navigation laws and regulations were not strictly applied. But under the Air Commerce Act the Secretary of Commerce is authorised to apply to civil aircraft any laws and regulations relating to the entry and clearance of sea-going vessels.

Application for the entry of the *Southern Cross* was made by its New York representatives to the U.S. Customs and permission for it to land at Roosevelt Field, New York, was granted. Concerning the question of duty, however, the representatives were referred to the local Customs authorities at New York, presumably for them to use their own discretion about whether the *Southern Cross* should be regarded as returned American goods or whether it should be allowed in under bond for a period of six months.

A fresh problem now arises in connection with the proposed flight of the Dornier Do.X from Germany to the United States. Permission has been asked for the Do.X to have free entry to the U.S.A. providing that it is fitted with American engines. It is thought that this permission would

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STANDARD

HERMES

RELIABILITY.

PRESS AND GENERAL AIR SERVICES.

Cirrus Aero Engines, Ltd,
Croydon Aerodrome,
SURREY.

Croydon Aerodrome,
August 9th, 1930.

Dear Sirs,

It may interest you to hear that on my recent flight to Baghdad and back the Hermes engine fitted to my Desoutter functioned perfectly throughout the flight.

The flying time on this flight was 62 hours and the distance covered approximately 5,500 miles and it must be remembered under most trying conditions for an air cooled engine as from Constantinople to Baghdad the heat was intense and the machine was carrying its maximum permissible load.

Apart from sometimes very hurried daily inspection, no work was carried out on the engine until arriving at Baghdad where it received a full routine inspection and where it was found that the motor was in perfect condition. On the return flight again no work was carried out, and the engine was running as well when I returned to Croydon as when I left.

A week after arriving back in England the machine was flown in the King's Cup race, and the engine was of course run at full throttle for the entire race and was giving full revs. at the end of the course. This engine is still in the machine and is still running perfectly.

I think that these two flights prove that the Hermes is an engine that does not mind hard work under most trying conditions.

Yours faithfully,

(Sgd.) C. BERNARD WILSON.

he Engine of to-morrow is the Hermes of to-day!

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be granted if the Do.X were only to make a short stay in the U.S.A. But the backers of the flight intend to keep the machine in the country for passenger-carrying to enable them to earn enough revenue to cover all expenses. This will make the machine liable to an import duty of 30%, which would amount to 700,000 dollars (£140,000). And there the matter rests at the moment.

THE S.A.E., U.S.A.

An official communiqué from the Society of Automotive Engineers, 29, West 39th Street, New York City, announces that Mr. John A. C. Warner has been appointed Secretary and General Manager of the Society of Automotive Engineers in succession to the late Mr. Coker F. Clarkson, the only previous holder of the position, who had been in it for the last twenty years.

The office of Assistant General Manager has been created and Mr. C. B. Veal has been appointed to it.

Mr. Warner returns to the Society from the Studebaker Corporation where he has been for the last four years. He served as an engineer officer in the American Expeditionary Force in France and in England, and was in charge of various work in the U.S. Air Service Technical Section. In 1921 he visited Germany, France, Switzerland and Italy as scientific representative of the U.S. Government.

Mr. Veal served as an officer of the Ordnance Department with the Curtiss Company during the War and since then he has been a consulting engineer.

LONDON—TANGIER—LONDON.

At dawn on Aug. 25 Mr. Charles Barnard left Lympne in the D.H. Puss-Moth G-AAXW, which is fitted throughout with Arens controls, to fly non-stop to Tangier, on the north coast of Africa. He arrived at Tangier at 17.00 hours and thus covered the 1,200 miles in 11 hours, or at an average of approximately 109 m.p.h.

He left Tangier again to make a non-stop return flight at dawn on August 26 and reached Croydon at 18.25 hours.

He thus achieved his object of eating consecutive dinners in London, Tangier and London respectively, and incidentally put up an amazingly fine flight which does full justice to his piloting ability and to the celerity and reliability of the Puss-Moth and the Gipsy III engine.

This remarkable achievement proves that Mr. Barnard's flight to Malta and back in 36 hours, from London to London including a night's rest in Malta, was no stroke of luck but the result of combined skill, care, and organisation. Many years ago Mr. Barnard proved himself to be one of our finest pilots over any distance, but only of late has he shown his true quality by showing up the slowness of our general development of aeroplanes, aero-engines and air-lines. Long may he be our pace-maker.—C. G. G.

A COLOURED LIGHT IN AVIATION.

There has just landed in New York from the French liner *Ile de France* a negro who styles himself Colonel Hubert Fauntleroy Julian, Chief of Aviation of the Abyssinian Army.

On July 4, 1924, plain Hubert Julian set out in an aeroplane from 125th Street on the Harlem River, New York, with the announced intention of flying to Liberia. The flight ended on the mud flats of Flushing Bay a few minutes later.

Eighteen months ago the same plain H. Julian left New York in a freighter. He alleges that when the King of Abyssinia heard about the flight he *almost* made to Africa he was invited to go to Abyssinia.

"Brother," said Col. Julian in an interview with a reporter of *The New York Herald* on landing in New York, "once I got there it was just will-power and personality— that's the Alpha and the axis."

When interviewed he was wearing a pith helmet, a monocle, a pink polo shirt, white breeches with green stripes and spurred riding boots, size 12½, specially made for him in Paris, of deerskin.

"His Majesty," said the Col., "had heard of me for years and last July 4 he made me a colonel in commemoration of my flight of six years before. On July 4 I had flown for His Majesty and His Majesty gave me the highest award and £2,000."

The Col. intends to visit his former home in Harlem, the nigger district of New York, after which it is alleged that he will prepare for a non-stop flight from Paris to New York.

"I am specially commissioned by His Majesty to buy an aeroplane for my trans-Atlantic flight," he said, and added, "His Majesty, of course, is standing all the expenses."

And now we want to know what our good French friend Monsieur Maillet, the French pilot who recently won the war against the Abyssinian (or more properly the Ethiopian) rebels for the new Emperor, and has been C. in C., chief pilot, observer, navigator, bombing officer, and ground engineer of the Ethiopian Air Force for the past year or two has to say about Col. H. F. Julian.

THOSE IMMORAL DOMINIONS.

The following letter comes from New Zealand:—

Sir,—In The Aeroplane which reached me on Dec. 18 appeared a paragraph about the raffle for a Moth and I nearly cabled the Stag Lane people to purchase a few tickets for me. On considering the matter however I thought that the limited number of tickets would be sold in a country like England in a few hours and I was astonished, to put it mildly, to see no reference to the raffle again until an Aeroplane which reached me in March.

It has occurred to me that perhaps raffles do not appeal to the English in the way that they do to Colonials. Both here and in Australia people simply fall over themselves to go in for sweeps, from the huge straight-out money prizes offered by the famous "Tattersalls" in Tasmania to so-called "Art Unions," which, having no limit upon the number of tickets which may be sold, are in reality mere swindles.

However, this yearning for a gamble can be directed into useful channels and, the end being held to justify the means, Aero Clubs have not been slow to obtain the necessary permission from the Minister of Internal Affairs.

I enclose a full page advertisement from *The New Zealand Herald*. This is one of many and its cost is £62 10s., with a very small discount for a contract.

I also enclose a cutting from the same paper showing the financial position of the Auckland Aero Club and that the net profit of their "Art Union" (?) was £12,624. I presume that will astonish you.

Now the reason of all this screed is to suggest to you that some means be found by which we Colonials can participate in English raffles for Moths or other light aeroplanes. In fact, if it were not for the ethics of the thing, the manufacturers of suitable aeroplanes could run them themselves. And I think that, with a limit on the number of tickets, which at once appeals to probable investors as it means one knows one has some sort of chance, they could rely on at least one a week being fully subscribed for a few months from Australia and New Zealand.

The position is simple. Dozens, even hundreds, of men and young men, who are either taking flying instruction or are intensely interested in flying, have no possible hope whatever of ever being able to buy an aeroplane. To endeavour to finance it they back horses on the State-controlled, and heavily taxed, totalisator, or invest in the State-sanctioned "Tattersall" sweeps. In neither case have they much chance of gaining the desired object.

Many thousands of pounds are ready waiting to be rushed into raffles where an actual plane is the prize and it seems a pity that these good pounds should be lost for ever.

Like all other Australians and New Zealanders, I am an inveterate gambler in this sort of thing. Can't you consider it and give us a chance?

(Signed) Trevor W. Stringer.

The Answer.

As readers of the foregoing letter will have gathered, what our brethren in the Antipodes call "Art Unions" are in fact nothing more or less than legalised raffles. And one would point out to our fellow-subjects in the British Dominions that Mr. Stringer uses the word "Colonial," which this paper so carefully avoids, because instead of being regarded as a title of honour, as it should be, so many touchy people overseas take it as a term of reproach.

Mr. Stringer's suggestion that there should be raffles for light aeroplanes is eminently sensible.—so sensible in fact that there is absolutely no hope of such things being allowed in this country for many years to come. Nevertheless, there is hope for the future, though it will not be till long after aeroplanes are very nearly as common as motor-cars.

Mr. Winston Churchill's betting tax was the first sign of legislative sanity. The establishment of the Government Totalisator is another. But there is still too much hypocrisy in our national make-up to allow our legislators to go very much further in the immediate future.

Possibly the nearest step will be the legalising of the big recognised sweepstakes, such as the Calcutta Sweep and the Stock Exchange Sweep, and then possibly we shall progress to legalised lotteries in connection with approved charities.—so that our consciences may be adequately salved. At any rate such lotteries would be preferable to the street corner plagues of flag-days or flower-days.

After that we may come to the legalisation of any approved lottery in which the tickets bear Government stamps according to their value. In that happy day perchance, the poor man may procure an aeroplane for half-a-crown. At present he must go to Australia and New Zealand for it and then the freight back to England may deter him.

Nevertheless one can see no reason why a lottery for an aeroplane in England should not be run from Australia or New Zealand, or why our flying clubs should not extend the idea, which seems to have become an annual event in the London Aeroplane Club, by holding lotteries and making buyers of so many tickets members of the club.—C. G. G.

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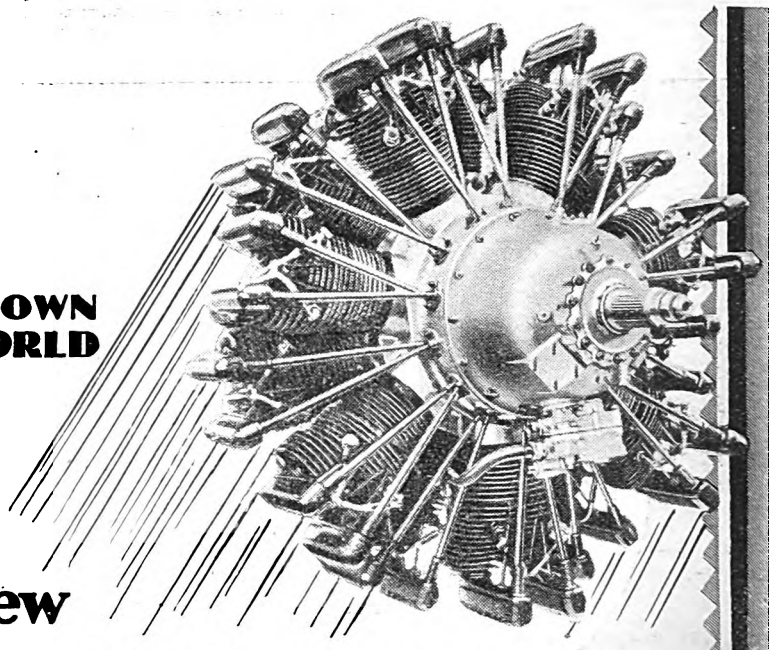

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Two types are available. The normal one with geared fan rated at 525 h.p. at 3,000 feet and developing a maximum of 560 h.p. at sea level, and the fully supercharged type rated at 510 h.p. at 11,500 feet.

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Flight Lieutenants K. L. Harris, to Half-pay List, 8/8. F. W. W. Wilson, to No. 203 Sqdn., 'Iraq, 14/7. S. N. Webster, A.F.C., to Aircraft Depot, 'Iraq, 18/7. L. H. Brooke, to Station H.Q., Donibristle, 16/8. P. Jones, to Station H.Q., Northolt, 29/7. J. A. W. Binnie, to H.M.S. *Eagle*, 15/8. J. M. Cohu, to No. 1 School of T.T. (Apps.), Halton, 14/8. G. W. Tuttle, P. R. Barwell, and T. G. Pike, to Home Aircraft Depot, Henlow, 5/8.

Flying Officers H. F. Luck, to H.Q., R.A.F., Middle East, 15/8. I. G. E. Dale, to No. 45 Sqdn., Middle East, 29/7. T. H. Carr, to 24 Sqdn., Northolt, 14/8. F. G. H. Ewens, to Station H.Q., Tangmere, 29/7. G. H. Walker, E. B. Steedman, R. H. Donkin, G. E. Campbell, D.F.M., A. H. Owen, H. Waring, B. C. Yarde, V. D. Morshead, J. D. F. Bruce, A. E. J. Pratt, L. S. Snaith, and R. L. Mills, to Home Aircraft Depot, 5/8. A. P. Miller, to Home Aircraft Depot, 12/8. G. E. E. Singleton, to No. 1 School of T.T. (Apps.), 15/8. F. J. Parker, to R.A.F. Depot, Uxbridge, 19/7. M. C. Collins, to No. 501 Sqdn., Filton, 18/8. H. W. Charnock, to No. 1 Sqdn., Tangmere, 18/8. K. C. T. Marshall, to 447 Flight, Mediterranean, 16/8.

Pilot Officers A. C. Bailey, to 35 Sqdn., Bircham Newton, 13/8. J. L. C. Banks, to 503 Sqdn., Waddington, 13/8. J. E. C. McClure, to 12 Sqdn., Andover, 13/8. R. M. Noblston, to 9 Sqdn., Manston, 13/8. A. W. B. Page, to 503 Sqdn., Waddington, 13/8. E. Poole, to 10 Sqdn., Upper Heyford, 13/8. W. B. J. Sharp, to 504 Sqdn., Hucknall, 13/8. G. E. B. Stoney, to 502 Sqdn., Aldergrove, 13/8. G. R. Stroud, to 502 Sqdn., Aldergrove, 13/8. J. H. Supple, to 10 Sqdn., Upper Heyford, 13/8. L. Watson, to 35 Sqdn., Bircham Newton, 13/8. R. L. West, to 503 Sqdn., Waddington, 13/8. R. B. Abraham, to 504 Sqdn., Hucknall, 13/8. M. J. Adam, to 24 Sqdn., Northolt, 13/8. J. C. Atkins, to Home Communication Flight, Hendon, 13/8. D. Barclay, to 503 Sqdn., Waddington, 13/8. R. J. Cohen, to 24 Sqdn., Northolt, 13/8. G. D. Emms, to 24 Sqdn., Northolt, 13/8. N. Kirkham, to 24 Sqdn., Northolt, 13/8. A. N. Luxmore, to 501 Sqdn., Filton, 13/8. M. E. Pickford, to 24 Sqdn., Northolt, 13/8.

MEDICAL BRANCH.—Flight Lieutenant P. J. Nyhan, to Station H.K., Hawkinge, 2/9.

Flying Officer M. Pearson, to P.M., R.A.F. Hospital, Halton, 1/6. On appointment to a temp. comn. in the R.A.F.

STORES BRANCH.—Flying Officer S. R. L. Poole, to C.F.S., Wittering, 25/8.

ACCOUNTANT BRANCH.—Squadron Leader W. G. W. Prall, to Aircraft Depot, 'Iraq, 7/7.

Flying Officer R. Trippett, to Aircraft Depot, 'Iraq, 7/7.

The Royal Princess.

The Lord Thomson, Secretary of State for Air, sent the following telegram to Group Captain the Duke of York on the occasion of the birth of a daughter on Aug. 21 to Their Royal Highnesses the Duke and Duchess of York:—

"On behalf of the Royal Air Force, the Air Council offer Your Royal Highness their respectful congratulations."

A Scandinavian Cruise.

Flying-boats of No. 201 (Flying-Boat) Squadron, R.A.F., will leave Calshot on Sept. 3 for a month's tour of the Baltic States. Arrangements have been made with the Governments of Denmark, Sweden, Finland, Estonia, Latvia, Lithuania, Poland and Norway for visits to be made to various ports during the cruise.

The Squadron will fly from Felixstowe to Esbjerg, a distance of 360 miles, on the first day. On Sept. 5 it will go to Copenhagen, where it will remain for three days. On Sept. 8 it will fly to Stockholm and on Sept. 12 it will go to Helsingfors, which is 250 miles from Stockholm. It will visit Reval for two days, and on Sept. 18 it will fly to Riga. On Sept. 20 it will go to Memel and on Sept. 22 to Puck. From Puck the Squadron will begin the journey home and will fly to Stockholm on Sept. 24, to Gothenburg on Sept. 26, to Oslo on Sept. 28 and to Esbjerg on Oct. 1. On Oct. 2 it will return to Felixstowe. The total mileage of the cruise is about 3,330 miles.

No. 201 Squadron is equipped with Supermarine Southampton flying-boats with Napier Lion engines. It is commanded by Sq. Ldr. E. F. Turner, A.F.C.

Group Capt. R. E. C. Peirse, D.S.O., A.F.C., Chief Staff Officer, Coastal Area, and Group Capt. E. L. Gossage, D.S.O., M.C., British Air Attaché in Berlin, will accompany the expedition.

Showing the Flag.

A Blackburn Iris III flying-boat (three Rolls-Royce Condor engines) of No. 209 (Flying-Boat) Squadron, R.A.F., piloted by Flt. Lt. L. G. Maxton, A.F.C., flew from Mount Batten, near Plymouth, to Lisbon on Aug. 25. The Iris, the Service number of which is S.1264, took about 10½ hours to make the journey. There is a crew of six, in addition to the pilot, on board. She was met outside the bar at Lisbon by two Portuguese seaplanes.

After a few days' stay off Lisbon the Iris will fly to Gibraltar, and will probably return direct from there to her base at Mount Batten.

According to the Air Ministry, this flight is primarily for training purposes, but they consider that valuable technical lessons may be learned.

No. 209 (Flying Boat) Squadron is commanded by Wing Cdr. C. G. Tucker, and was formed in January, 1930.

The Afridi Invasion.

Two Press communiqués were issued by the Army Department of the Government of India on Aug. 21. They cover the military activities from Aug. 5 to Aug. 13. A précis by *The Times* correspondent in Simla appeared in that paper of Aug. 22, and extracts from it are quoted hereafter with due acknowledgments:—

On Aug. 7 the strength of the Afridis and of the Orakzais with them in the Kajuri Plain was estimated at about 7,000. The *lashkar* was evidently hidden in the caves and broken ground towards the west of the plain, as little was seen of it during air reconnaissances. The infiltration of small, very mobile, bands of Afridis into the Peshawar Plain, the protection afforded to them there by the villagers, and the concealment offered by high crops called for a series of military reconnaissances and for continual alertness by all the troops. This imposed a great strain on the Peshawar garrison. Happily it was well borne, and the amount of sickness was surprisingly low.

By Aug. 10 a force equivalent to an infantry brigade group was concentrated at Nowshera to reinforce the Peshawar garrison and had a very salutary effect.

When the situation about Peshawar on Aug. 11 was explained to Army Headquarters an additional infantry brigade was placed at the disposal of the Northern Command, an armoured train was sent from Lahore, and preparations were made to effect the clearance of the area east of Peshawar.

The *communiqué* says that as secretly as they had entered the district so the Afridis were reported by Aug. 12 to be returning to Tirah in considerable numbers. By Aug. 13 the westward trend was clearly confirmed, and the immediate need for the execution of the plan to clear the district of Afridis was, therefore, removed. Throughout the last few days, the *communiqué* continues, the necessity for active pursuit, should the opportunity arise, was never lost sight of, but, by their skill in the use of the ground, movement by night, and by dispersion, the enemy denied our troops the chance for which they were looking.

An estimate of the casualties inflicted on the enemy must be based largely on conjecture. The skill with which the Afridis have removed their dead and wounded prevents the computation of an accurate figure. The Chief Commissioner for the North-West Frontier Province has estimated the casualties at 50 killed and twice that number wounded. The casualties suffered by our troops are limited to the few incurred by the Poona Horse on Aug. 9 and one policeman wounded.

The *communiqué* on the work of the Royal Air Force describes a constant series of flights by day and night for reconnaissance and bombing. On Aug. 9 a total of 70 aeroplane attacks was made by No. 11, No. 27, No. 39, and No. 60 Squadrons on villages in the Bara and Waran valleys, and from dawn to dusk No. 5 and No. 20 Squadrons kept up offensive patrols over the cave area and attacked with bombs and machine-guns all parties observed. Mention is made of the use made of a twin-engined Hinaidi aeroplane, which carried over half a ton of bombs for each attack.

Between Aug. 4 and Aug. 16 the six air squadrons engaged in the operations carried out a total of 1,835 flying hours, including night flying.

R.A.F. Training for Foreign Officers.

The value of the training in the various branches of the Royal Air Force is shown by the number of applications received from other countries for permission to send officers and cadets to undergo a period of training in the R.A.F.

Between Jan. 1, 1928 and Mar. 31, 1930, approximately sixty officers from foreign countries received courses of training or were attached to R.A.F. Establishments. The countries from which these officers came were Argentina, Bolivia, Czechoslovakia, Chile, Estonia, Finland, Greece, Japan, Netherlands, Norway, Poland, Roumania, Sweden, Spain, Turkey, Yugo-Slavia, 'Iraq and Egypt.

Major Chu, of the Chinese Military Air Service, and Lieut. Tzanetakia, of the Greek Air Force, are attending the two years' Engineering Course, which began at Henlow on Aug. 5.

Six Indian Cadets will join the Royal Air Force College in September.

Prize Cadetships.

The Air Ministry announces that the Air Council have awarded Prize Cadetships each of the value of £105 per annum for two years to the following successful candidates at the examination held in June 1930 for entry into the R.A.F. College, Cranwell:—N. G. Dathan (Kelly College, Tavistock), M. H. Rhys (Monmouth Grammar School), A. N. Combe (Rugby School), T. U. Rolfe (Nautical College, Pangbourne), D. W. B. Carnaghan (Plymouth College), D. R. Evans (Wellington College).

Flight Cadetships and Scholarships.

The Air Ministry announces that Aircraft Apprentices T. G. L. Gale (Bletchley, Bucks), S. J. Marchbank (Holloway), and R. A. C. Carter (Blackheath) from No. 1 School of Technical Training (Apprentices), Halton, have been selected for cadetships at R.A.F. College, Cranwell, on the result of the examinations held on completion of their three years' training as aircraft apprentices.

Sir Charles Wakefield Scholarships valued at £75 each have been awarded to Flt. Cadet D. R. Shore (Maida Vale, London) on the result of the recent competitive examination for entry into the R.A.F. College and to Flt. Cadet T. G. L. Gale.

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The Provision and Training of Intelligence Officers.

A new policy to meet staff requirements of officers with a knowledge of Middle-Eastern languages and experience of intelligence work, is described in a recent Air Ministry Order, extracts from which are as follows:—

Junior posts.—About half the posts for flight lieutenants (air staff intelligence) on the strength of the H.Q.'s, of the 'Iraq, Palestine and Transjordan, Middle East and Aden commands, will be filled by permanent officers, and the remainder by officers specially appointed. In principle, all officers actually performing staff duty at headquarters will be permanent officers, and a proportion of the officers employed on special service duty away from headquarters will also be permanent officers. The number of posts to be filled by permanent officers is at present eleven.

Training.—Four permanent officers of the rank of flight lieutenant or flying officer with five years or more service, will be selected and sent each year to 'Iraq to work half time on intelligence duties and half time on learning (at public expense) a Middle Eastern language—Arabic or Kurdish. During their first year they will be expected to pass a colloquial test in the language studied by them, but will not be eligible for the awards at present provided. Arrangements for their training and colloquial examination will be made by the A.O.C., 'Iraq.

Subsequent employment.—On conclusion of training, officers will be posted for a further two years' tour of duty as intelligence officers in 'Iraq, Aden, Transjordan or Sudan. Towards the end of this period they should be able to pass the interpretership examination and receive the prescribed awards of £60 for qualification as a 1st class interpreter and £30 for qualification as a 2nd class interpreter, and gain an antedate for promotion. Officers who have rendered satisfactory service in intelligence duties will be given an advantage by nomination or added marks in the qualifying examination for entry into the Staff College, and by the opportunity therefore of gaining a further antedate for promotion.

Higher intelligence posts.—Higher intelligence posts in the rank of squadron leader and wing commander will as a rule be filled by permanent officers who have completed a tour of duty in a junior intelligence post, have qualified at the Staff College, and have again become due for service abroad.

Foreign Languages.

The procedure governing the selection of officers of the General Duties Branch of the R.A.F. for courses in Foreign Languages is described in a recent Air Ministry Order.

A small number of permanent officers are required to undergo training in foreign languages for qualification as interpreters and employment in Staff and extra posts in which a knowledge of the language is essential. Particulars of the several languages and the arrangements for qualifying are as follows:—

Arabic or Kurdish: Three of the former and one of the latter are required each year. The date of beginning training is in course of Trooping. The course is held in 'Iraq and the period of the course is one year, half the time to be spent in learning the language and half in intelligence. Officers who have qualified are required for intelligence duties.

Russian: One officer is required every year. Training begins in April at King's College, London. The course lasts 6 months and is followed by six or nine months' residence in a Slavonic country.

Japanese: On officer is required every other year. Training begins in October at the School of Oriental Studies, London. The course lasts six months and is followed by three years' residence in Japan.

Officers who qualify as interpreters (1st or 2nd class) in these languages receive an antedate for promotion.

In addition, officers may qualify as interpreters in French, German and Spanish by studying in their own time and at their own expense. These languages carry no antedate.

The selection of officers to undergo language training will be made in future under a new procedure, the details of which are given in Air Ministry Weekly Order No. 519 of 1930.

Transfers to the Stores Branch.

Although vacancies in the commissioned ranks of the Stores Branch of the R.A.F. are normally filled by officers entered on a permanent commission basis, in exceptional circumstances an officer of the General Duties Branch or a Flight Cadet may be transferred. Applications from permanent or short-service officers, not above the rank of flying officer, who are permanently unfit for full flying duties or from flight cadets classified similarly, will be considered by the Air Council.

Applications must be accompanied by a recommendation and go through the usual channels. Officers must be between 21 and 25 years of age, but a candidate up to 30 years of age may be accepted if he has previous service so that he can complete 20 years' service by the time he is 45.

Officers are transferred on probation and have to pass a course of instruction in stores duties. They are not gazetted to permanent commissions until they have completed 12 months' satisfactory service in the stores branch.

Transfer to the Indian Army Service Corps.

A few vacancies for officers commissioned on or after Sept. 1918, will shortly occur in the Indian Army Service Corps, which is being reorganised. Application for registration for selection as vacancies arise may be forwarded through the usual channels by (i) Short service officers of the general duties branch who are ineligible for permanent commissions, (ii) Medium service officers (general duties branch), (iii) Permanent officers of the general duties branch who have not qualified as specialists and are classified permanently as physically unfit for full flying duties but are fit for ground duties at home and abroad.

Details of the conditions of service may be had from the India Office.

Central Flying School Categories.

The following officers and airman pilots who attended the Flying Instructors' Course at the Central Flying School from May 20 to Aug. 4, 1930, have been categorised as follows:—

A2. Flg. Offs. D. F. W. Atcherley, S. O. Bufton, D. Menzies, G. F. MacPherson.

B. Flt. Lt. G. M. E. Shaw, Flg. Offs. W. J. Crisham, E. D. Elliott, O. I. Gilson, J. W. Homer, J. S. Pole, L. H. Snelling, L. M. Woolveridge. Plt. Off. W. C. Sheen. 354296 Sjt. Bredenkamp, V. J. W., 352207 Sjt. Scott, A.

C. Flg. Offs. I. B. Beesley, L. V. Bennett, D. D. Christie, W. R. Tope, F. A. W. Williams.

The following officers and airman pilots have been categorised as under from the dates stated against their names:—

A2 to A1. Flt. Lts. P. R. Barwell 17.7.30, W. M. C. Kennedy 17.7.30, F. K. Damant, D.F.C. 17.7.30, Flg. Off. W. F. Lovering 4.7.30, 344430 F-S. Frost, W. J., 4.7.30, 310871 Sjt. Plumbridge, H. G., 4.7.30, 318362 Sjt. Lurdon, J. E., 17.7.30, 362111 Sjt. Pegg, A. J., 17.7.30.

B to A2. Flt. Lts. J. S. Blomfield 4.7.30, J. H. Sender 17.7.30, Flg. Offs. G. H. Godwin 21.7.30, J. Mutch 21.7.30, C. H. Appleton 21.7.30, A. W. Shaw 16.6.30, 346763 Sjt. Winton, K. C., 17.7.30, 330140 Sjt. Elliott, W. R., 4.7.30, 336655 Sjt. Baker, C. A., 4.7.30.

B. Flg. Off. V. G. Bowling 15.5.30.

The British Empire Games.

A/C. R. H. Thomas, R.A.F., representing England, won the One Mile Championship at the British Empire Games at Hamilton, Canada, on Aug. 23, in 4 mins. 14 secs., and thus put up a new Canadian Record. A/C. Thomas also ran in the 880 yards Championship on Aug. 22 and was placed second.

Corpal S. Ferris, R.A.F., was second in the Marathon Race, which was run on Aug. 22.

AN EMPIRE HANDBOOK.

[*The Air Annual of the British Empire*, 1930. Edited by Sq. Ldr. C. G. Burge, O.B.E. LXIV + 774 pp. Index. Many Plates, Illustrations and Maps. Gale and Polden. The Aeroplane Book Dept., Cannon House, Pilgrim Street, E.C.4. £1 1s. 9d., post free.]

When criticising the first volume of this annual (which appeared last year) the present reviewer welcomed its appearance, and said that, excellent as it was, it could do with a certain amount of "clewing-up," and he is pleased to note that this process has taken place.

This year's edition, though not perfect, is much better arranged, and is almost free from padding. The production is uniformly good, except the binding, which seems to have the same fault as last year,—namely not being strong enough to withstand continual use, considering the weight of the book.

The volume is divided into seven sections dealing with the various aspects of Service and Civil Aviation.

In the first, "Empire Aviation," there is a short article by Mr. Sherrington, who was lately lecturer in transport in the London School of Economics, on subject of "Economics of Air Transport." In it he wisely says that so far technical development has outstripped the economic considerations connected with aerial transport. And indeed, such an article may well serve as an introduction to this volume, for many in Civil Aviation are apt to be too complacent about the successes which have been attained.

Mr. Bourne follows with an interesting article dealing with "Air Survey within the Empire." In this he manages to condense much useful information, but its value suffers from its illustrations. For instance, there is one of "Hilmarton Geological Survey" in which we are bidden to see all sorts of things which the reviewer feels that the average reader will be totally unable to see.

The Editor has wisely included a paper recently read before the R.U.S.I., by Group Captain C. L. Courtney, on "The Strategic Mobility of Air Forces"—a paper which bids fair to be a classic. Major F. A. de V. Robertson has an article on "Air Transport in the British Empire," but the subject merited treatment on a much larger scale.

As in last year's Annual, Major Oliver Stewart has written on "Service Aircraft," and on "The Air Forces" (it is presumed that he has written the latter article, although this is not specifically stated) and both these articles are better than they were last year.

Lt.-Col. Lockwood-Marsh has written on "The Evolution

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of Rigid Airship Design," and Air-Commodore Masterman has written on "The Evolution of Mooring and Handling Devices for Airships," which, in the reviewer's opinion, is the best paper yet written on this subject—that is, from the purely historical standpoint.

There follows an article on "Aviation Insurance" and one on the development of Civil Aviation in Australia, New Guinea, Canada, New Zealand, India, and South Africa. Also there is one dealing with the progress of Imperial Airways Limited.

Major Turner has written, in his usually pleasant vein, on the history of the Royal Aero Club, and has dealt with "Flying Club Progress." The reviewer was glad to see that Mr. Howard-Flanders—whose pioneering work is so often forgotten—has written on Gliding, and gives much useful information in tabloid form.

The section devoted to "Air Survey" is good, but in the reviewer's opinion the value of the article would have been augmented if the illustrations had been reproduced better.

Mr. Handley Page, as befits the chairman of the S.B.A.C., tells us how splendidly British aircraft are behaving, and within the compass of nine pages has managed to condense many interesting facts about the year's progress.

One of the best articles is that by Lieut.-Col. Outram, on "British Aeronautical Inspection," and the reviewer suggests that it would pay the members of the S.B.A.C. to have this article reprinted and used as a form of propaganda, for it would show to the buying World how carefully British aircraft material is examined during the various stages of its manufacture. Other countries cannot be told too often how careful and exacting is the work conducted by the A.I.D.

Mr. Irving contributes a temperate article on "Safety and Control," and the paper is, in its way, a model of compression.

The rest of the Annual is devoted to the products of the various British aircraft and accessories manufacturers. This section is complementary to "All the World's Aircraft," and, so far as can be judged, is accurate.

Last year the present reviewer stated that a bibliography should be included, and he notes with pleasure that the Editor has taken a step—if only half-hearted—in this direction. What is needed—and needed badly—is that *each* contributor shall be required to include at the end of his article a list of all the important works which have been published during the year on his own particular subject. This may be an exacting demand, but it is necessary, and the present reviewer will continue to press for it.

The whole Annual shows evidence of careful preparation. It is a marked advance on last year's issue.—S. G.

SALAMON AUGUST ANDREE.

On July 11, 1897, a Swedish Arctic explorer named Salamon August Andrée set out with two companions from Danes' Island, Spitzbergen, to attempt a flight over the North Pole in a balloon. Until a few days ago nothing but one pigeon message and unconfirmed rumours were ever heard about the expedition, which disappeared entirely from human knowledge.

On Aug. 8, 1930, a party from the Norwegian Svalbard and Arctic Ocean Expedition exploring White Island, Franz Josef Land, from the ship *Bratvaag*, discovered the body of Andrée and one of his companions, with the remains of their camp.

Dr. Horn, leader of the expedition, reported his find to Captain Gustav Jensen of the ship, *Ternen*, who brought the news to Tromsö.

Cooking utensils were first found, and put the party on the track of their discovery. A boat and sledge were uncovered of snow and ice, and near the former was the body of Andrée. A notebook, marked with his name, and a pedometer similarly engraved, were found on the body, which was frozen in perfect preservation.

The body of his companion was found at some distance in a cleft, but whether it is that of Fränkel or Strindberg (the names of the other two) is not yet known.

Colonel Swedenborg, who, according to a Stockholm dispatch, was present at the departure of the Andrée expedition in readiness to go up in the balloon if any of the three dropped out at the last moment, says that the discovery of the boat and sledge shows that the balloon made a safe landing. In fact the whole appearance of the camp indicates an orderly arrival on foot. They had, says Col. Strindberg, provisions for six months, guns and ammunition.

Capt. Otto Sverdrup, writing to the *Tidens Tegn*, of Oslo, says he had been convinced that Andrée's balloon drifted towards Franz Josef Land after its start. He had the impression that Andrée himself had doubts of the success of the expedition—which would have been natural enough in anyone without the Polar exploration complex—and the wind was not very favourable on the day the balloon left.

The remains of the expedition have all been taken on board the *Bratvaag* and a warship may be sent, according to advices from Stockholm, to bring them to Sweden.

The only message from the balloon was brought by a pigeon some days after Andrée's ascent. It read:

July 13, 12.30 p.m. Latitude 82, Longitude 15 east; good speed towards east, 10 degrees south. All well on board. This is the third pigeon post. Andrée.

GEORGE GALL SIM.

With much regret The Aeroplane announces that Mr. G. G. Sim, C.S.I., C.I.E., Deputy Chairman of Vickers Ltd., and Vickers-Armstrongs Ltd., died on Aug. 20, in the Winchester House Nursing Home, Elgin, Scotland, after a very short illness, of pneumonia complicated by malaria.

He was born at Strichen, Aberdeenshire, in 1878, and was educated at Aberdeen University, and Christ Church, Oxford. He joined the Indian Civil Service in 1901. He was transferred to the Central Government in 1920, and his name will always be associated with two pieces of work of outstanding importance in the financial history of India. One of these was the task of consolidating and improving the Indian income-tax law and its subsequent administration. The other was his valuable service as Financial Commissioner to the Railway Department. In this latter capacity Mr. Sim played a prominent part in the separation of railway from general finance, a reform which was characterised by the Finance Member as the greatest financial achievement of recent years.

Mr. Sim joined Vickers Limited on July 1, 1926, and was appointed Secretary on July 15, 1926. Subsequently he became a Director of Vickers Ltd., and Vickers-Armstrongs Ltd. and of several of the associated companies, including the Airship Guarantee Co. Ltd. On Mar. 11, 1929, he was appointed Deputy-Chairman of Vickers-Armstrongs Ltd., and on Nov. 6, 1929, Deputy-Chairman of Vickers Ltd.

VAN LEAR BLACK.

On Aug. 19 Mr. Van Lear Black, owner of the *Baltimore Sun*, fell overboard from his yacht, *Sabalo*, off the New Jersey coast and was drowned. Mr. Black was born at Cumberland, Maryland, in 1875, of Netherlandish-American parents. A successful business career increased his already considerable wealth and he was known, at the time of his death, as a keen yachtsman and air traveller.

His interest in aviation first brought him into the public eye in 1927 when he chartered a K.L.M. aeroplane to take him from London to Cairo on a business mission. Thereafter he flew over most of Europe in aeroplanes chartered from the K.L.M., and also made a historic trip to Batavia and back in a three-Lynx Fokker. The feat aroused so much enthusiasm in Holland that he was granted a decoration by the Queen. The K.L.M. air-mail experiments to the Dutch East Indies were undertaken soon after.

In 1928 Mr. Black had a special Fokker built for him (three Armstrong Siddeley Lynx engines) and early in 1929 he flew in it to Cape Town. He had a forced landing in Italy on the return trip. Later he started on a flight to Japan but his machine was damaged in India.

He then had a new machine built, another Fokker, which had three Wright Whirlwind engines. In it he flew to Tokyo, had it dismantled and shipped to San Francisco, and then continued his journey by air to Baltimore.

The two Netherlands pilots who flew the chartered machine in 1927, Gerrie Geysendorffer and Johann Scholte, entered Mr. Black's personal service when he acquired machines of his own and piloted them on all his flights.

Van Lear Black did great service to aviation and his death is to be deplored, so far as good propaganda for long-distance flying is concerned. Yet his death was for the best. He was an unhappy man, because of some domestic trouble which he naturally did not discuss. And he took to flying as he did chiefly to find some new sensation which would distract his thoughts and concentrate his interest. He was a man with many acquaintances, who liked him for his open-handed hospitality and good-fellowship, but he had few friends,—though he was very likeable when in his normal state.

Many people will miss him, and those who liked him will hope that he has found happiness.—C. G. G.

A STRAIGHT QUESTION.

Mr. B. Stacey, of New Malden, who recently displayed concern for the airworthiness of foreign aeroplanes flying under British registration, writes about the Junkers monoplane which crashed at Meopham:—

Is it an established fact that that machine, as designed and built—materials, components and everything else—could have qualified for a C. of A. if it had been produced in this country? For myself I am ignorant of the subject and that is why I ask. It certainly seems to me an important question which should be answered by a responsible authority.

This seems to be a straight question to which the Air Ministry might well give a straight answer.

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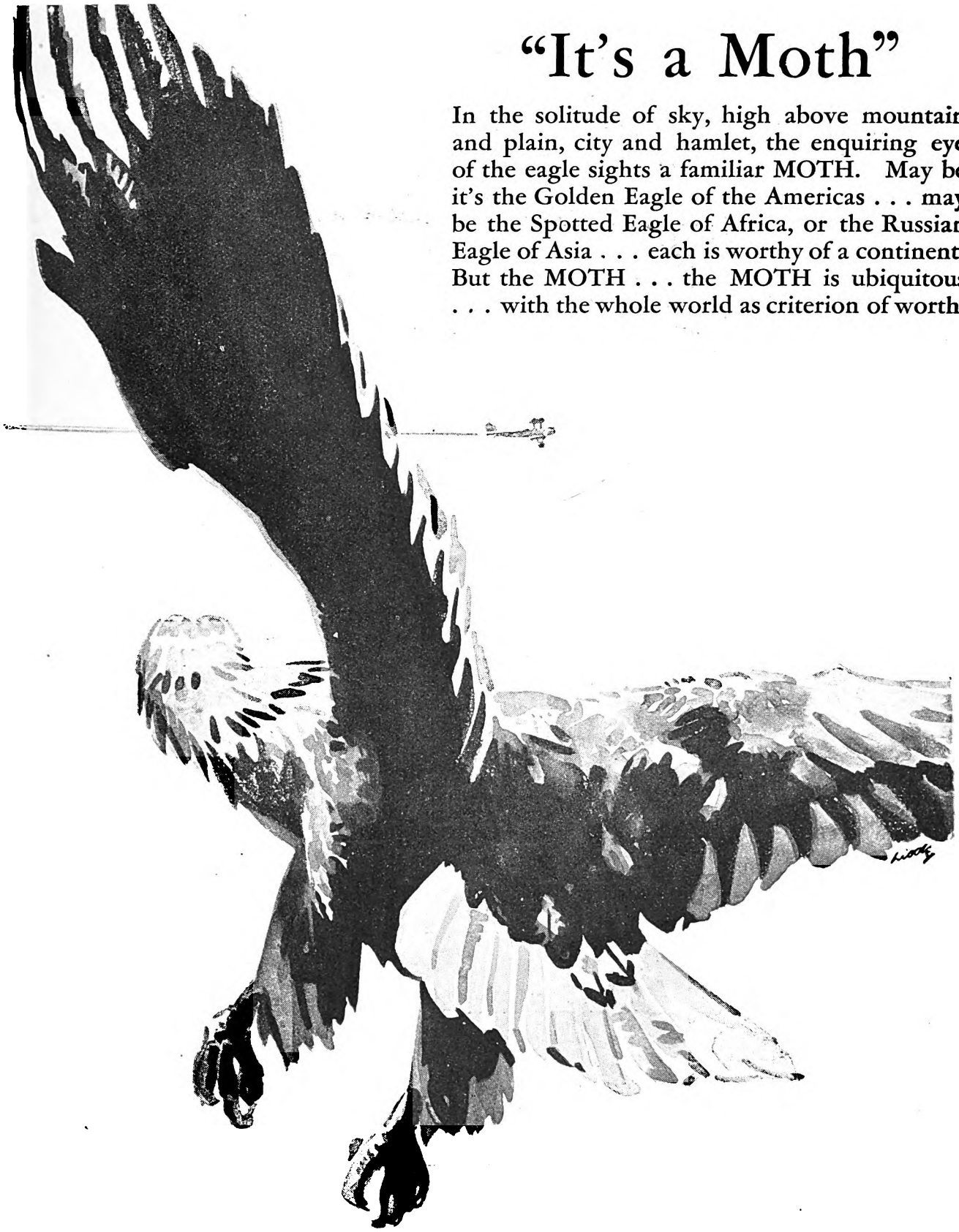
"It's a Moth"

In the solitude of sky, high above mountain and plain, city and hamlet, the enquiring eye of the eagle sights a familiar MOTH. May be it's the Golden Eagle of the Americas . . . may be the Spotted Eagle of Africa, or the Russian Eagle of Asia . . . each is worthy of a continent. But the MOTH . . . the MOTH is ubiquitous . . . with the whole world as criterion of worth.



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AERONAUTICAL ENGINEERING

SUPPLEMENT TO "THE AEROPLANE"

SELF-STARTERS FOR AERO-ENGINES.

THE ECLIPSE ELECTRIC STARTER.

For years the electric-starter has given yeoman service on the motor-car. But for some reason aero-engines have always been started, at any rate in this country, by hand-swinging, hand-cranking, or motored round by something like a Hucks Starter. Attempts are now being made to introduce starters of the press-the-button type, of which are the Heywood-J.A.P. injection starter and electrically-spun inertia types such as the B.T.H.-Eclipse.

The makers of the last-mentioned starter have also evolved a very satisfactory electric-starter, and some instructive figures for this, when used on a 210 h.p. engine, are available. A description of this starter is all the more worth while as its success controverts all the existing ideas in this country about electric starters and their weight. There is, naturally, the weight of the battery to be taken in account, but this has to be carried on commercial aircraft or others for lighting and radio. Weight has also been saved by operating the starter through a remote control and solenoid switch, thus saving weight by cutting down the length of the heavy starter-cables.

This Eclipse starter measures 11½ in. overall (from the rear end of the crank-shaft to the back of the starter) and weighs 24½ lbs. This is actually less than the weight of an equivalent electrically-spun inertia starter.

The successful adoption of this type of starter has been made possible by running the motor pretty fast, say 7,000 r.p.m., and then using a reduction gearing of 95:1, which cranks the engine over at about 75 r.p.m. The high speed keeps down the weight of the motor and the big reduction gives the necessary torque.

The starter is made up of four parts. These are the electric motor which runs off a 12-volt storage battery, the reduction gear, the automatic meshing and de-meshing mechanism and the adjustable torque-overload release.

When the switch is closed and the motor starts, a pinion on the spindle turns an intermediate spur-gear. A small pinion on the same spindle meshes with the internal teeth of the sun-gear, which in turn drives through the sun-pinion three planetary pinions rolling within a fixed internal gear. The planetary gears drive the barrel which contains the torque-overload release. This is a spring-adjusted multiple-disc clutch.

The clutch discs are internally splined and drive the spline nut. In this is the screw shaft, which advances with the rotation of the nut until the starter-jaw, which engages with it, comes into contact with the engine shaft. A friction brake is used to advance the starter-jaw the requisite distance before rotation of the jaw begins to ensure its proper engagement with the engine-jaw. The starter-jaw is so faced that it provides ready disengagement the instant the engine starts. The torque-overload release is a safety device which protects the engine and starter in the event of a back-fire.

This starter has been tried out very extensively and from these tests the figures which follow have been obtained.

The current needed to slip the multi-disc clutch or torque-overload release when set at 350 ft.-lbs. is approximately 300 amperes at 12 volts. Just before the clutch slips, or at a torque of approximately 300 ft.-lbs., when the r.p.m. of the engine are approximately 75, the current required is about 275 amperes at 12 volts. [3.3 kilowatts or about 2½ h.p.—ED.] This is equivalent to cranking a very stiff engine.

For continuous cranking, at normal temperatures of about 55 deg. Fahr. the constant current required would be about 115 amperes at 12 volts and the cranking speed would be about 72 r.p.m.

The breakaway current [presumably the current at which the engine begins to turn—ED.] would be approximately 240 amperes at 12 volts. At 23 deg. Fahr. the starter cranks the engine round at about 45 r.p.m. and consumes 190 amperes at 12 volts.

This particular size of starter is not recommended for much bigger engines than the one on which it was tried, that is 700 to 800 cub. in., but another type is being developed to handle engines up to 1,350 cub. in. [the Jupiter is somewhere about 1,830 cub. in.—ED.]

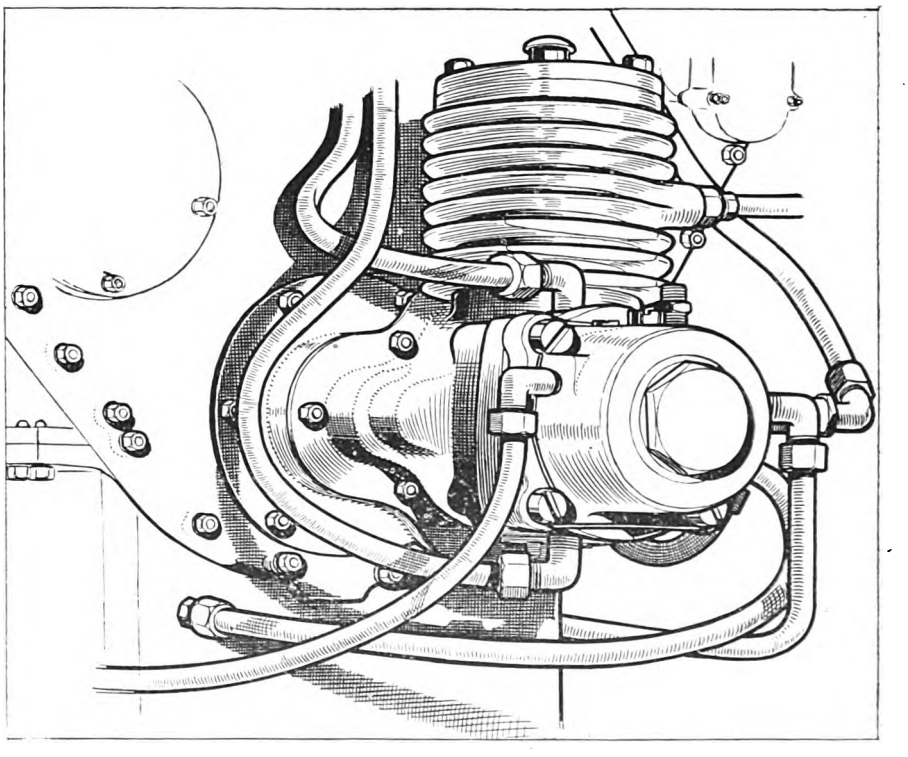
THE HEYWOOD INJECTION STARTER.

The problem of starting an aero-engine by other than manual labour is complicated by the need for a mechanism which will have enough energy to provide a big starting-torque and yet be light enough to carry as a fixture in the aircraft. The need for a good power-weight ratio rules out the electric starter of the types generally used for cars of light and medium powers.

There are in use to-day various methods of starting an aero-engine, apart from hand-cranking or swinging the air-screw. The engine may be motored round by a drive from an external source, or it may be forced round by gas admitted under pressure to the cylinders. This gas may either be compressed-air admitted on the power-stroke, or it may be carburated-air supplied under pressure on the inlet stroke.

The most familiar starter in this country is the Bristol gas-starter which forces the engine round by pumping carburated air into the cylinders on the inlet-stroke. This starter is an arrangement of an air-cooled, two-stroke, single-cylinder engine with a pumping-cylinder arranged Vee-fashion on the common crank-case. The pumping-cylinder supplies carburated air to a distributor on the engine through which mixture is supplied in proper order to each cylinder through separate pipe-lines and non-return valves in each cylinder.

Similar devices, but hand-operated, are in use on the Continent.



A NEAT FITMENT.—The Heywood J.A.P. Injection Starter bolted to the Cirrus-Hermes. The small size of the mechanism can be gauged from the outline of the crank-case.

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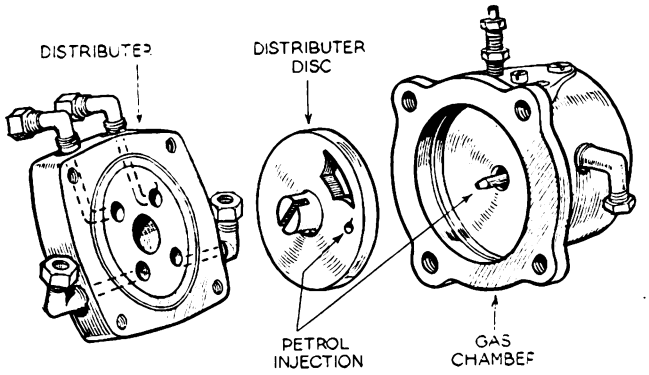


The distributor-chamber in pieces, showing how the air and petrol vapour are led into the various cylinder pipe-lines.

A device which pumps the engine round by compressed air and supplies petrol vapour under pressure to cylinders at the top of the compression-stroke has been introduced into this country by the famous engineering firm of J. A. Prestwich and Co. Ltd. This is the Heywood-J.A.P. High-Pressure Injection Starter, which has an air-cooled air-compressor driven by the engine, a tank for storing the air so compressed, and a distributing device which supplies compressed air and mixture in the correct order to the various cylinders. The whole apparatus weighs some 25 lbs.

When the engine is running the compressor pumps up the container which has a volume of half a cubic foot (at atmospheric pressure) to a pressure of 400 lbs. per sq. ft. When this figure has been reached a release valve comes into action and allows the compressor to run free of load. As only a small quantity of air is used to start an engine, a 400 h.p. engine can be started about a dozen times without re-charging the container.

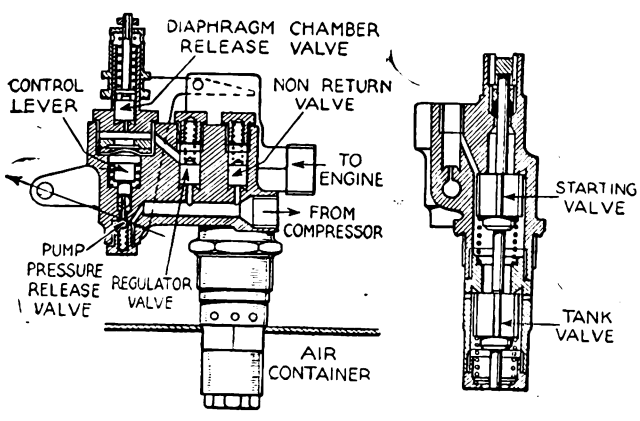
The compressor is so mounted that it is driven at half crank-shaft speed and is therefore preferably driven off the cam-shaft. Attached to the compressor is the distributing and vapourising mechanism.

This has a rotating disc with two ports, a large one for the admission of compressed air to the cylinders on the power-stroke. The disc rotates about a petrol jet from which a radial passage leads to a small port. This port and passage ensure the injection of vapour into the cylinder which first passes the top dead-centre of the power-stroke. This charge is ignited through the normal system of ignition.

The whole mechanism is quite sturdy and simple. The valves and release gadgets are the most complicated parts. Two line-drawings of these are appended to give an idea of their working.

The air from the compressor has to pass two valves. The first of these is a non-return valve whence the air passes round the starting-valve to the tank-valve and so into the tank. When the pressure reaches 400 lbs. the air raises the regulator-valve and passes to the diaphragm chamber where it raises a piston. The lifting of this piston allows a ball to move off its seating in the pump-pressure release-valve and so allows the escape of the air from the compressor straight down the main channel and through a diagonal passage to the atmosphere.

When the starting-lever is moved, by remote control, the starting-valve and tank-valve are both depressed, which allow air to pass to the distributor. At the same time it opens a release-valve above the diaphragm chamber, and releases the pressure above the piston. This allows the ball of the pump-pressure release-valve to fall back into place and so directs the compressed air into the container for re-charging.



A section through the involved valve-mechanism.

One has referred to this mechanism as complicated. But when one realises that the diaphragm-valve acts as a safety-valve in the rare event of the pump release-valve sticking, one can see that such complication is merely a safety measure.

This starter is very handy and has already been giving yeoman service on the Hermes Avian, G-AAHJ, and a Cutty Sark also with Cirrus-Hermes engines. By only using a container of half the standard capacity, the weight of the set for light aircraft has been considerably reduced.

MANŒUVRABILITY TESTS OF A SEA-PLANE.

Some informative tests of the manœuvrability of a seaplane on the water have been made by Mr. George Spaak, who is a well-known Swedish Civil Engineer and private owner of an Avro 504K (130 h.p. Clerget rotary engine). A report of these tests has been published as No. 105 of the Proceedings of the Royal Swedish Institute for Engineering Research.

Mr. Spaak wanted to get some comparative figures for the manœuvrability of a seaplane on the water, because the ability to manœuvre at low-water speeds even in high winds is essential if seaplanes are to be widely used.

The method of obtaining this information was to measure both the time taken for the machine to complete a full turn of 360 degrees and also the turning-moment required to bring about such a turn. This latter force was measured by a "moment-gauge" attached to the interplane struts.

This is a lever with a plate of known area fixed to its lower end so that the plate can be pulled into the water by a wire from the cockpit. The drag of the plate is measured by a spring-balance. When not in use the plate is kept clear of the water by a rubber cord. The reading of the spring-balance multiplied by the distance of the lever from the C.G. gives the turning moment.

Mr. Spaak, besides making experiments with water-rudders, also tried the effect of flexible floats. The long single-step floats which the Avro had were each divided into two parts at the step and hinged about a vertical axis at this point. These flexible tails could be deflected 12 degrees and were worked like water-rudders from the rudder-bar.

With the normal arrangement of rigid floats and air-rudder the quickest turn that could be made at the average water-speed of 6¾ knots (which was kept as standard throughout the tests) took 60 seconds.

The highest wind in which a complete turn could be made at all had a velocity of three to four metres per second (6.71 to 8.95 m.p.h.).—[There seems to be something wrong here. Surely a good pilot can turn an Avro on floats round a complete circle in winds up to 15 or 20 m.p.h.—Information will be welcomed.—C. G. G.]

With the normal arrangement of rigid floats and water-rudders (each 380 mm. x 380 mm. = 14.96 x 14.96 in.) the time to make a complete turn in a flat calm was 25 secs. In a wind with a velocity of 6 to 7 m. per sec. (13.4 to 15.7 m.p.h.) the time to turn was 55 secs.

With the flexible floats deflected to their maximum of 12 degrees the time taken to turn in a flat calm was 19 secs. The manœuvring moment was very low (76 kg.m. = 549 ft. lbs.).

These figures are certainly interesting, but one wishes that Mr. Spaak had published some figures about the relative resistances of the rigid and flexible floats. One would imagine that the flexible float would have a higher resistance at hump speeds when travelling straight.

THE TOWNEND-TYPE RING IN THE US.A.

Tests have been made on a Fokker F-10A three-engined commercial monoplane with and without cowling-rings of the Townend type.

With the rings the machine made an average timed speed of 152.6 m.p.h. at 2,030 r.p.m. or 153.75 m.p.h. at 2,045 r.p.m. when corrected to sea-level.

Without the cowling-rings these figures were 144.0 m.p.h. at 1,990 r.p.m., or 145.5 m.p.h. at 2,010 r.p.m. when corrected to sea-level.

The cruising speed with the rings was 126 m.p.h. at 1,700 r.p.m. and without the rings 123.3 m.p.h. at the same engine speed.

The airscrews used were three-bladed Standard Steel screws set at 17.5 degrees and with a 42-inch radius. The tests were made with a full load of 5,319.5 lbs., which made a total loaded weight of the machine of 13,099.5 lbs.

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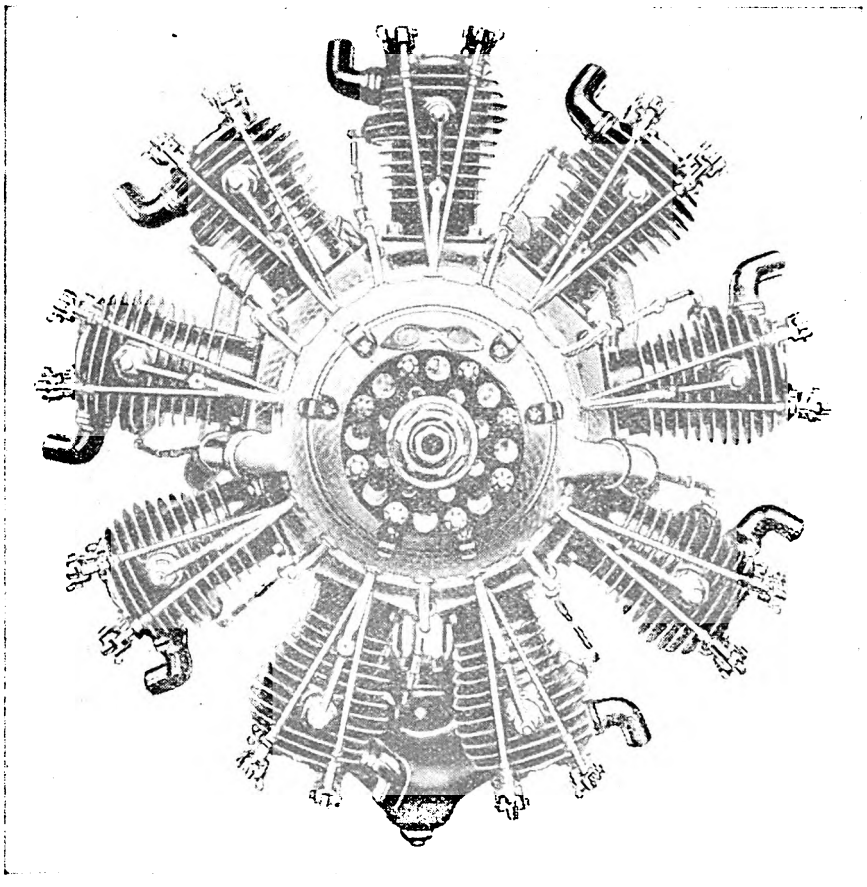
BRITISH SALMSON
AERO ENGINES

RELIABILITY AND SMOOTH RUNNING.

40-50 H.P.

60-75 H.P.



95-110 H.P.

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TYPE AD9. 40-50 H.P.

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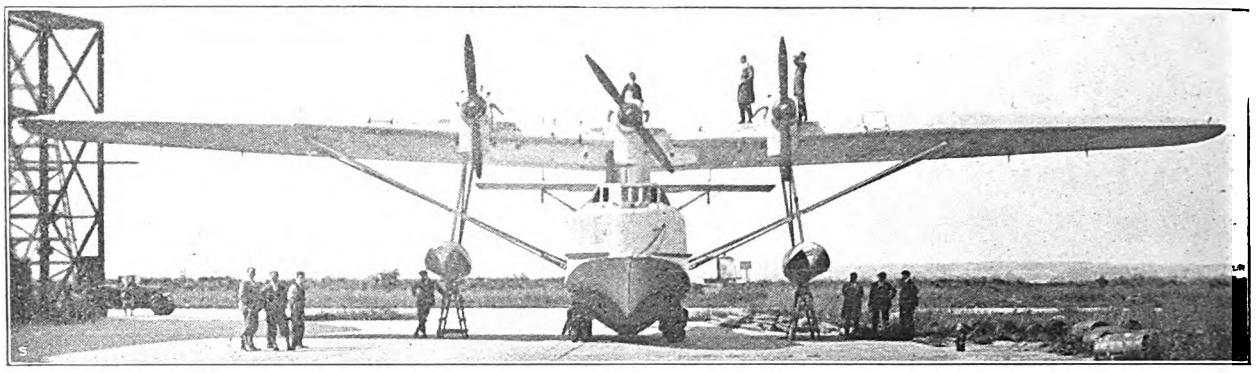
THE BLACKBURN SYDNEY.



THE BLACKBURN SYDNEY.—A front view of the latest product of the Blackburn Aeroplane and Motor Co. Ltd., on the slipway at Brough.

The Blackburn Aeroplane and Motor Co. Ltd. have recently completed a three-engined monoplane flying-boat, which is known as the Sydney. This machine is designed to fulfil the same duties as the Blackburn Iris three-engined biplane flying-boat, namely Reconnaissance and Coastal Patrol, either independently or in co-operation with surface craft, and it is arranged to carry a similar crew and military load.

The Sydney is a military version of the Nile, the hull of which was shown at the Aero Show at Olympia in July, 1929.

The machine is constructed entirely of metal, with the exception of the fabric covering of the wings and tail-unit.

The wing is in three sections, consisting of a centre-section of parallel chord and depth and two outer sections which taper in chord and depth to the tips.

The centre-section is supported above the hull by a steel-tube structure, which is faired in to form a streamline nacelle and its extremities are braced to the hull by two pairs of sloping struts. Two wing floats are set comparatively close to the hull and are supported by two pairs of struts from the centre-section.

The hull is similar to that of the Iris except that the sides above the water-line are nearly perpendicular whereas those of the Iris slope inwards towards the deck. From the second step the lines of the hull sweep upwards to the stern.

The tail is a monoplane. There are no fins and the three rudders, which are unbraced externally, incorporate servo control which can be engaged or disengaged as wished.

The three 525 h.p. Rolls-Royce F. XII M.S. engines are carried in nacelles which are faired into the top of the leading-edge of the centre-section. Each nacelle is fitted with a water tank, radiator with shutters, oil tank and oil cooler.

The main petrol tanks are in the faired portion between the hull and centre-section and the engines are supplied by engine-driven pumps through a distributor control.

There is accommodation in the hull normally for a crew of five, comprising pilot, second pilot-navigator, wireless operator, engineer and gunner.

In the bow is an open cockpit with a Scarff gun mounting. From this cockpit the second pilot-navigator operates the bomb-sights and releases, and can attend to mooring and towing operations.

Communicating with the bow cockpit is the main compartment for the pilots which is completely enclosed. This has accommodation for two side-by-side, with complete dual and engine controls. The cabin top is fitted with sliding side-windows and sliding panels in the roof.

Aft of this compartment is a watertight bulkhead. Behind this bulkhead on the port side is a navigator's station, and on the starboard side the wireless station. Aft of the wireless station is a settee berth the back of which hinges up to provide an additional upper berth. Locker space for clothes etc., is provided under the lower berth.

The next compartment aft is the engineer's station. In this compartment is the engine instrument panel with radiator-shutter controls etc. This compartment has two seats with locker space below.

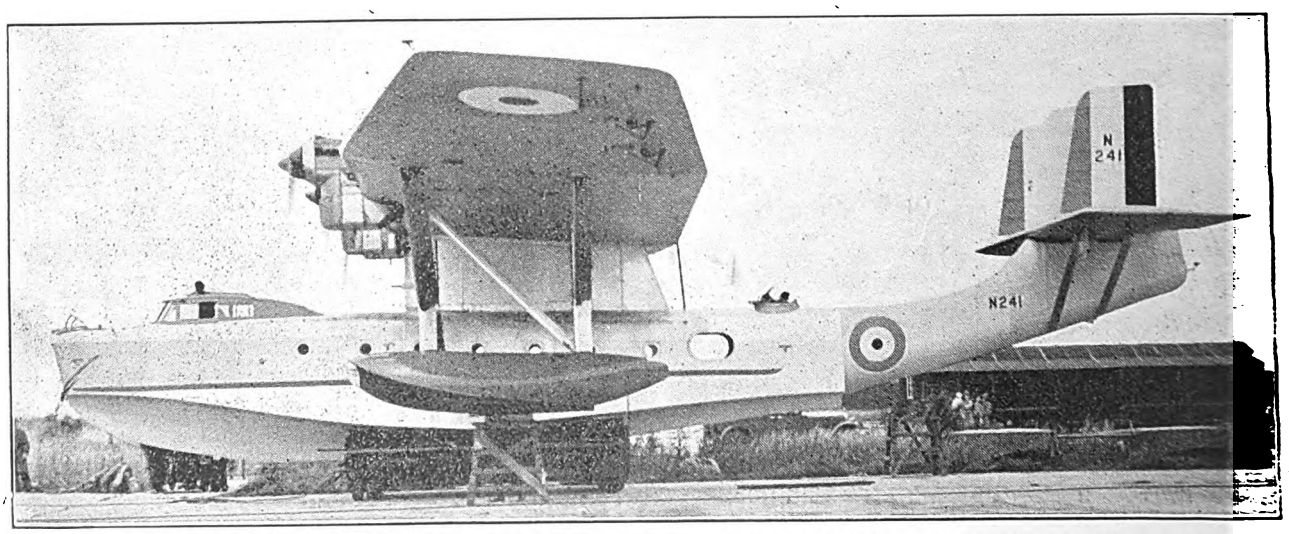
The next station aft is the men's sleeping quarters and has three folding bunks. Further aft is a lavatory and behind this is a cooking-stove with ice-chest beneath it. On the opposite side of this compartment are fresh water and paraffin storage tanks.

At the rear of this compartment is the rear machine-gun station, which has a moveable gun-mounting. Below the gunners' platform is further locker space.

In the extreme tail of the hull, aft of the tail unit, is a tail-defence gun-station, also with a moveable gun-mounting. Access to this station is gained through a trap in the rear machine-gun station.

No information concerning the weights and performance of the Sydney may yet be released, except that when fully-loaded it weighs nearly 10 tons. Its military load is very similar to that of the Iris.

The Sydney is expected to have a top speed of over 120 m.p.h.



FOR SEA PATROL.—The Blackburn Sydney Reconnaissance and Coastal Patrol flying-boat (three Rolls-Royce "F" engines). This machine is designed to carry a crew and military load similar to that carried by the Blackburn Iris but with increased accommodation for the crew and with a higher all-round performance.

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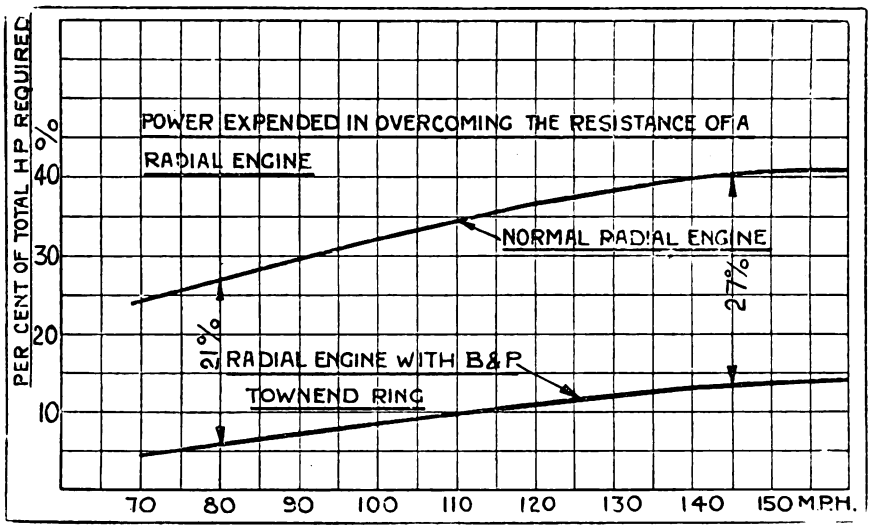
TO USERS OF AIR-COOLED RADIAL ENGINES

Users of air-cooled radial engines are expending a large proportion of their engines' output in driving the engines themselves through the air.

The upper curve in the figure below shows the power expended, in the case of a machine with a 450 H.P. Radial engine, in overcoming the resistance of the engine at speeds of from 70 to 150 m.p.h. This wasted power is expressed as a percentage of the total H.P. required by the whole aeroplane at the particular speed.



The lower curve shows how the power thus wasted can be reduced by fitting the engine with a Boulton & Paul TOWNEND RING. This saving amounts to from 20% at low speeds to 27% at high speeds.

25% REDUCTION IN POWER expended at cruising speed means either:

(A) 25% REDUCTION IN FUEL CONSUMPTION for the same range and speed.

25% REDUCTION in engine output for the same range and speed, with a consequent increase in engine life between overhauls, reduced MAINTENANCE COSTS and increased reliability.

AN INCREASE IN PAY LOAD corresponding to the reduced weight of fuel required.

OR

(B) 10% INCREASE IN CRUISING SPEED for the same engine power.

10% REDUCTION IN FLYING TIME for the same service, and hence

10% REDUCTION IN FUEL CONSUMPTION.

10% REDUCTION IN MAINTENANCE & DEPRECIATION.

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THE CONSOLIDATED FLEETSTER.

The Fleetster cabin monoplane is the first metal-fuselage cabin land-plane built by the Consolidated Aircraft Corpn. of Buffalo, N.Y. This firm has long been the most important supplier of primary training aircraft to the U.S. Air Services, but in the last two years they have turned their attention to civil aircraft. Its first commercial product was the Commodore 22-seat twin-engined metal flying-boat, a civil version of the Consolidated XPY-1 Admiral Naval patrol flying-boat.

The Fleetster is a high-wing cantilever monoplane, of distinctly Lockheed-like external outline, with the 575 h.p. Pratt and Whitney Hornet, series ' B," radial engine.

It is available in two types.

The Type 17 has the cantilever wing directly on top of the fuselage with the enclosed cockpit located in the leading edge of the wing in front of the cabin. The cabin under the wing has accommodation for six passengers, seated on two seats which face each other. Each seat runs the full width of the cabin and accommodates three people.

The pilot's cockpit seats two side-by-side, and single wheel control is normally fitted, but dual control can be supplied if necessary. A small baggage compartment is located just aft of the passenger cabin.

The Type 20 has the wing attached by a cabane about 12 inches above the fuselage, and the pilot's cockpit, which is open, is located aft of the wing and cabin. This type is supplied primarily as a mail and express 'plane and the normal cabin space provides an unusually large hold.

It can also be supplied as a combined passenger and mail carrying plane in which accommodation is provided for five passengers, together with space for a considerable load of mail.

Structurally, both types are identical and they embody an all-metal fuselage and tail unit and a wooden wing. They can be supplied as either a landplane or as a twin-float seaplane and fittings for both types of gear are provided as standard equipment.

The fuselage is a metal monocoque of streamline form and is perfectly round from engine mounting to the extreme end of the tail. It is built up on the three main bulkheads, to which the wing and undercarriage are attached, two bulkheads at the tail and a number of light former-rings spaced between.

The skin, which is of smooth aluminium alloy sheet, is rivetted to the bulkheads and is stiffened against local fracture by a number of longitudinal stiffeners of extruded "bulb" angles which are rivetted directly to the skin. The former-rings are not rivetted to the skin but pass inside the longitudinal stiffeners, to which they are attached by rivetted clips.

The skin itself is double-curved at all points, a feature which adds considerably to its stiffness and increases its resistance to failure by buckling or crinkling.

The engine mounting is in the form of a truncated cone and is built of heavy smooth sheet duralumin reinforced and stiffened by bent-up channels and extruded shapes. Welded steel fittings are rivetted to the mounting at the engine-bolts to distribute the loads into the sheet metal.

The mounting bolts pass through rubber blocks in such a way that there is no metal-to-metal contact, so that any vibration of the engine is insulated from the fuselage. The large end of the mounting is flanged and rivetted directly to the circular front end of the fuselage.

The cantilever wing, which tapers in chord and depth, is all wood and is covered with plywood. It is built up of two main box-spars, between which are a number of spruce and plywood compression members. Between these compression members and parallel to the main spars are two equally-spaced auxiliary spars. Light spruce forming-strips complete the structure, which is then covered with plywood. The "Frise" type ailerons are of spruce and plywood.

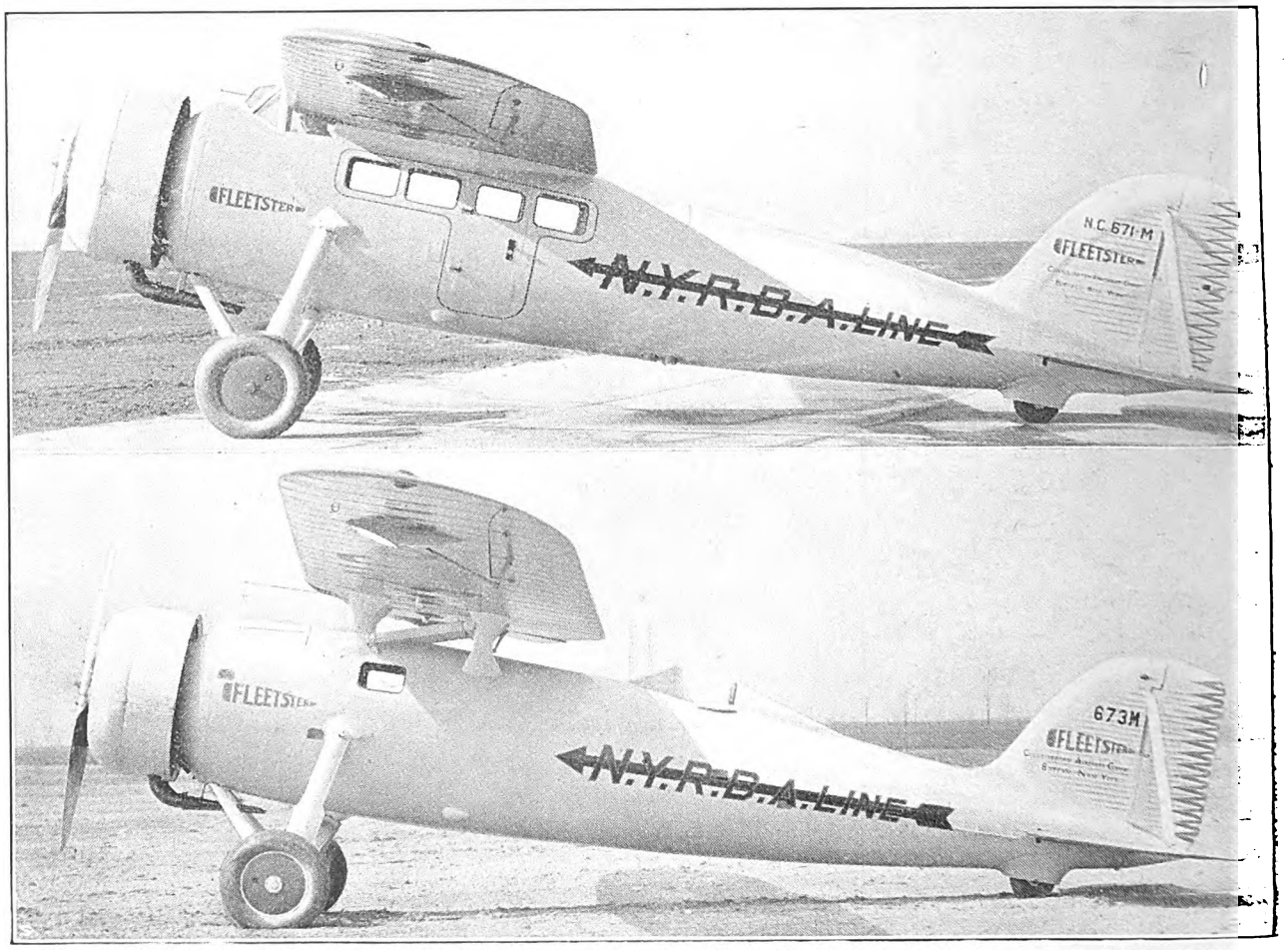
The tail-unit is of all-duralumin construction. The fin is built integral with the fuselage and in addition to being of unsymmetrical section it is also offset to counteract air-screw torque.

The tail plane is adjustable in the air and the main torsion member which is a duralumin box is braced to the fin by two streamline duralumin struts, one on each side.

The rudder is balanced on inset hinges. The balanced portion in front of the hinge line is divided so that the top half of the unsymmetrical leading-edge which is shielded by the fin is turned to the right and the bottom half to the left. Thus only half the balance is operative at any one time, but it becomes effective with a very small angular displacement of the rudder and has a smaller "dead" range than that of the more normal inset balance.

The elevators are normal and unbalanced.

The whole tail-unit is covered with light gauge smooth duralumin sheet which is stiffened with shallow corrugations at 2-inch intervals. Bent-up channels form the main



THE FLEETSTER.—Side views of the Consolidated Fleetster, Type 17 (above), and Type 20 (below). Both types are fitted with the 575 h.p. Pratt and Whitney Hornet engine.

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THERE are also Heat-Resisting Steels which have great strength at high temperatures.

BUT there is a Steel which has both the maximum scale-resisting properties COMBINED with great strength at High-Temperatures—this is unique.

THE Rolls-Royce engine of the winner of the recent Schneider Trophy was fitted with this very latest development in valve steels, and it has been found generally that for aero engine valves Firth H.R. Crown Max Steel has proved itself superior to all other steels.

Write for further details on Firth Stainless and Heat-Resisting Steels—it will gladly be sent upon request.

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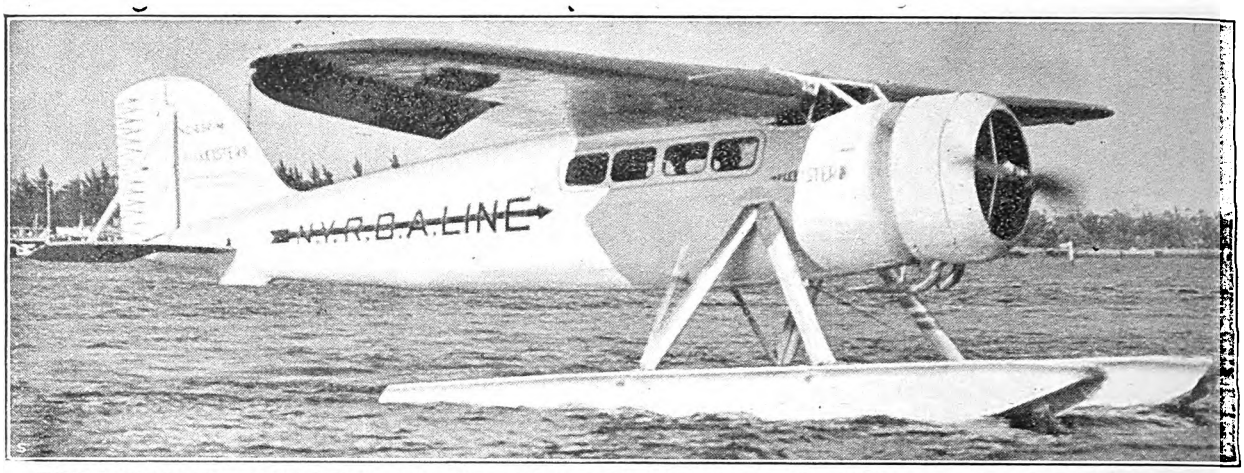


THE FLEETSTER SEAPLANE.—The Consolidated Fleetster, Type 17 (575 h.p. Pratt and Whitney Hornet engine), as a twin float seaplane.

members of the tail-plane and fin and duralumin boxes form the torsion members of the elevators and rudder. All tail control cables and levers are inside the fuselage.

The undercarriage is of the normal split type with combination oleo and spring shock-absorber struts.

The tail wheel installation consists of a Goodyear Airwheel in a fixed mounting so located that about two-thirds of the wheel is enclosed within a small fairing and the fuselage itself.

The main wheels have brakes which may be applied simultaneously or independently from the rudder pedals by pivoting toe-pads.

The 575 h.p. Pratt and Whitney Hornet engine is enclosed in an N.A.C.A.-type cowling. In this installation no internal cowling is used, as the conical sheet-metal engine-mounting is made to serve in this capacity. The addition of this cowling results in an increase of speed of approximately 15 m.p.h.

Throughout the machine every attempt has been made to eliminate useless drag. The cleanness of the original design has been augmented by careful fairing of the intersections of the undercarriage struts with the fuselage and with the wheels and in the Type 17 by the use of filets at the juncture of the wing and the fuselage.

The Type 20 with wireless and full night-flying equipment and carrying sufficient fuel (100 gallons) for 500 miles at a cruising speed of 150 m.p.h. has a net pay load of 1,700 lbs. It has a top speed of 175 m.p.h. and a maximum fuel capacity of 150 gallons, which is sufficient for a cruising range of 750 miles. The maximum weight of the Model 20 is 5,900 lbs. and the Type 17 is 300 lbs. lighter.

Both types of Consolidated Fleetster are being used on certain sections of the New York, Rio and Buenos Aires Air Line—commonly known as the NYRBA, and one Type 20 has been bought by Western Canada Airways for use on its contract air mail routes.

THE ISHIKAWAJIMA R-3.

Dr. G. Lachmann who is now with Mr. F. Handley Page was formerly in Japan as Technical Advisor to the Ishikawajima Aircraft Co. Ltd. While he was there the Japanese Company built a number of machines under his direction among which was a training machine the R. 3. This aeroplane was designed for the Cirrus III engine for which a manufacturing licence has been acquired by the Japanese Company, who are also interested in slots. These are now being fitted to machines of the R.3 type.

The whole machine with the exception of the British-built Cirrus III is made with Japanese material and a Japanese staff have been responsible for its design and manufacture.

CONSTRUCTORS.—THE ISHIKAWAJIMA AIRCRAFT CO. LTD., Tsukishima, Kyobashi-Ku, Tokyo.

TYPE.—Two-seat light training biplane.

WINGS.—Unequal span, single-bay biplane. Top centre-section carried above fuselage on splayed-out struts with one pair of interplane struts on either side of the fuselage. Wing structure consists of box spars and girder ribs. In place of inner bracing, under surfaces of wings are plywood covered, the remainder being covered with fabric. Ailerons, balanced by inset hinges, on all four wings. Aileron structure of duralumin covered with fabric.

FUSELAGE.—Rectangular structure with domed roof. Welded steel-tube framework with diagonal wire bracing and covered with fabric.

TAIL UNIT.—Monoplane type. Duralumin framework covered with fabric. Unbalanced rudder and elevators.

UNDERCARRIAGE.—Divided type. Consists of two telescopic legs, with oleo and rubber rings-in-compression springing, attached to the top fuselage longerons, the bottom ends being hinged by two half-axles to the centre-line of the underside of the fuselage and two radius rods running aft to the bottom longerons.

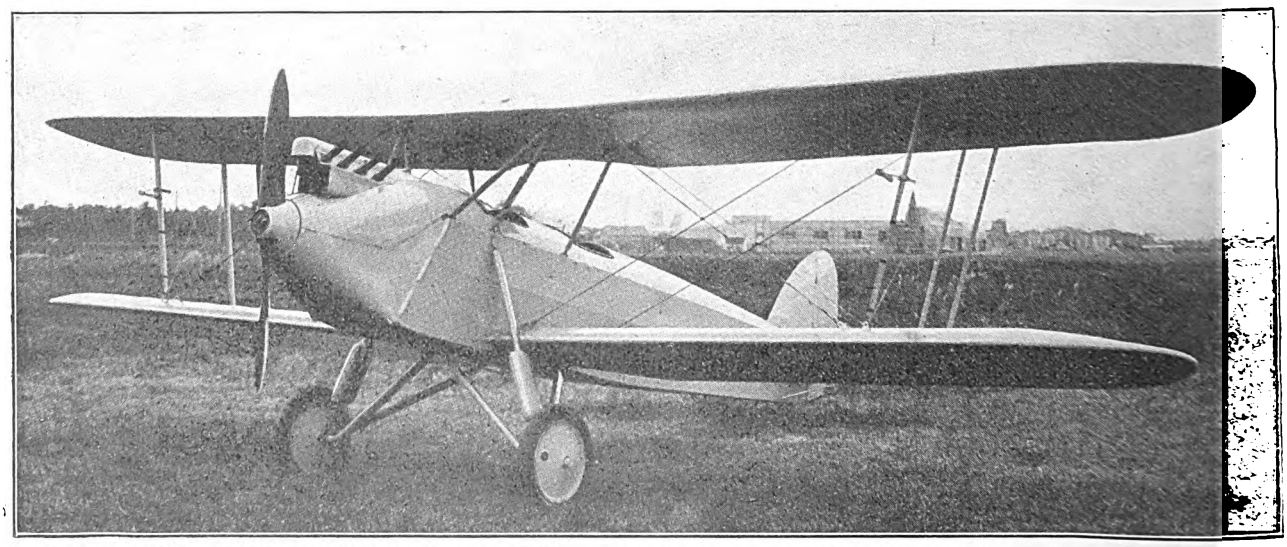
POWER PLANT.—One Cirrus Mk. II or Mk. III or Cirrus-Hermes four-cylinder in-line air-cooled engine (to be built under licence by the company). Engine mounting built of duralumin bulkheads with duralumin skin, the whole being quickly detachable. Fuel tank in centre-section.

ACCOMMODATION.—Tandem open cockpits with dual control.

DIMENSIONS.—Span 9.8 m. (33 ft. 2 in.), Length 6.99 m. (22 ft. 11 in.), Height 2.9 m. (9 ft. 6 in.), Wing area 24 sq. m. (259 sq. ft.).

WEIGHTS.—Weight empty 458 kgs. (1,008 lbs.), Disposable load 222 kgs. (490 lbs.), Weight loaded 680 kgs. (1,498 lbs.).

PERFORMANCE (Cirrus III engine).—Speed, maximum, 165 km.p.h. (102.5 m.p.h.), Landing speed 65 km.p.h. (40.4 m.p.h.), Ceiling 5,000 m. (16,400 ft.).



A JAPANESE LIGHT AEROPLANE.—The Ishikawajima R-3 two-seat light biplane (Cirrus III engine), which has been built by the Ishikawajima Aircraft Co. Ltd. of Tokyo. It has a welded steel tube fuselage and wooden wings.

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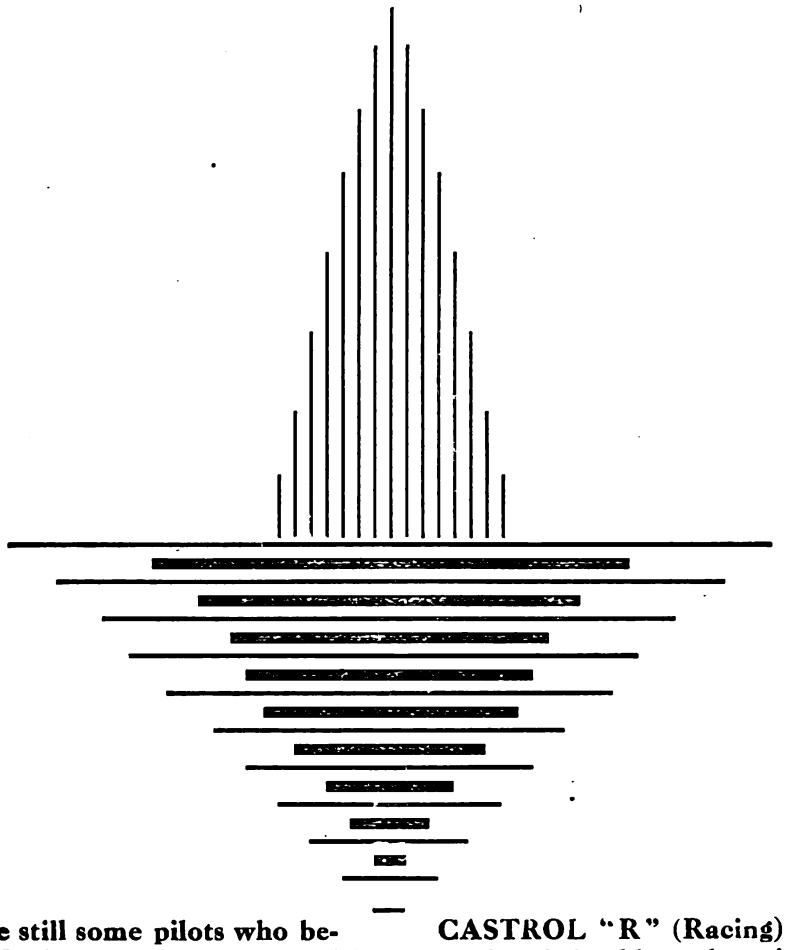
BY APPOINTMENT TO HIS MAJESTY THE KING

Castrol *will* mix!



THERE are still some pilots who believe that CASTROL will *not* mix with other makes of lubricating oil. There is no foundation for such a belief. Although an oil of peerless quality, CASTROL mixes readily with any other brand of oil; naturally also, one grade of CASTROL will mix with another.

CASTROL "R" (Racing) alone is excepted and should not be mixed with any other oil or any other grade of CASTROL. The full benefits of CASTROL will not, of course, be experienced unless 100% CASTROL is in use. Therefore, the sump should be drained and refilled with CASTROL to obtain immediate results.

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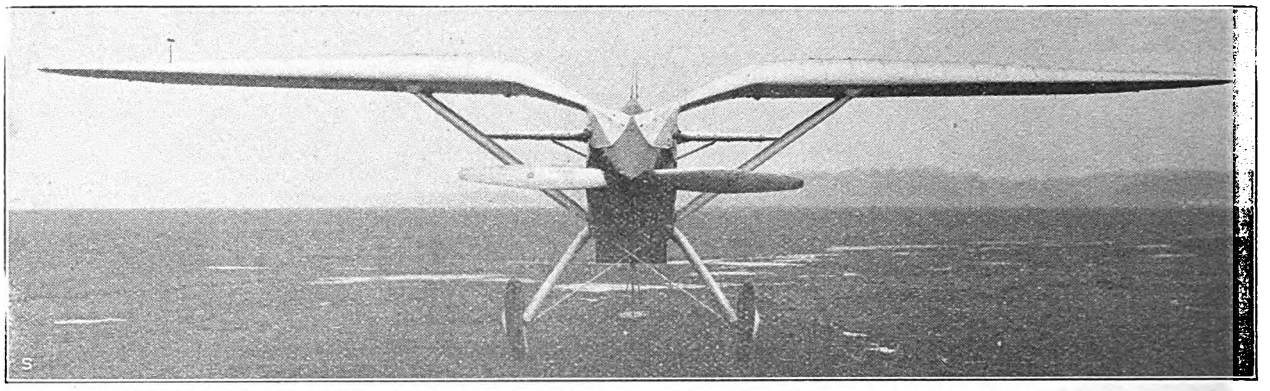


A POLISH FIGHTER.—A front view of the P.Z.L. P.1 Single-seat fighter (600 Hispano-Suiza engine).

THE P.Z.L. P.1 MONOPLANE.

MAKERS.—PANSTOWE ZARLADY LOTNICZE, WARSAW.

TYPE.—Single-seat fighter monoplane.

WINGS.—High-wing braced monoplane. Wing tapers in chord and in thickness. Rounded wing tips. Each half has greatest depth of section at bracing-strut attachment. The inner end of each half slopes down with thinning section to point of attachment on fuselage. Two parallel bracing struts on each side brace wings to bottom of fuselage. Wings built up of two I-section spars built up from duralumin sheet, with duralumin ribs and corrugated duralumin covering. The less highly-stressed part of the wings are covered with electron metal. Long narrow-chord ailerons extend for practically the whole length of the trailing edge and have inset ball-bearing hinges. Each aileron is a box-glider built up from duralumin and electron. Ailerons used as flap gear for slow landing.

FUSELAGE.—Flat sided with domed top and bottom. The top and bottom decking are easily removable. The fuselage is in two sections with joints just aft of wing. Structure consists of rectangular bulkheads made from duralumin with an outer skin of the same material.

TAIL UNIT.—Normal monoplane type, with cantilever fin and braced tailplane. The latter braced with single strut on each side from rear spar to fuselage. Adjustable tail-plane. Unbalanced rudder and balanced elevators. Structure, of duralumin and electron, similar to wings.

UNDERCARRIAGE.—Divided type. Each wheel is supported by a cantilever streamline leg and independently sprung with a Vickers oleo-pneumatic shock-absorber placed in the fuselage. Tail-skid also sprung with Vickers oleo-pneumatic shock-absorbers.

POWER PLANT.—One 600 h.p. Hispano-Suiza twelve-cylinder Vee water-engine. Cylinder blocks fair into sloping centre-section of wings. Removable engine cowling of electron. Two duralumin fuel tanks, 400 litres' capacity, in wings, and with gravity feed to collector tank in fuselage, whence fuel is pumped to engine. Oil tank in fuselage above engine, tank also forms oil-cooler. Retractable Lamblin radiator beneath fuselage. Fireproof bulkhead, and automatic fire-extinguisher.

ACCOMMODATION.—Single cockpit behind cut-out in wings. Exceptionally good visibility due to arrangement of wing attachment to fuselage. Pilot's seat adjustable in the air with movement of 110 mm. (4.3 in.). Flap gear control and tail-plane adjustment are combined but can be used independently.

DIMENSIONS.—Span 10.85 m. (35 ft. 7 in.), Length 6.98 m. (22 ft. 11 in.). Height (in flying attitude) 3.05 m. (10 ft.). Wing area 19.5 sq. m. (210 sq. ft.).

WEIGHTS AND LOADINGS.—Weight empty 1,066 kgs. (2,350 lbs.), Fuel and oil 280 kgs. (619 lbs.), Military load 214 kgs. (473 lbs.). Weight loaded 1,560 kgs. (3,440 lbs.). Wing loading 80 kgs./sq. m. (16.4 lbs./sq.ft.), Power loading 2.6 kgs./h.p. (5.75 lbs. per h.p.).

PERFORMANCE (guaranteed).—Max. speed at ground level 305 km./h. (190 m.p.h.), Landing speed 100 km./h. (62 m.p.h.), Climb to 5,000 m. (16,400 ft.) 8 min., Service ceiling 8,000 m. (26,240 ft.), Range at cruising speed 2 hours.

HEAVY OIL AGAIN.

The Rome correspondent of *The Times* mentions a "naphtha"-driven aircraft at the Pageant in that city on June 10. The aeroplane was a Fiat, and flew successfully from Turin on the day of the Pageant and later took part in the meeting. No details of the engine are available except that it used heavy fuel of the type which we should call paraffin, and it seemed to give complete satisfaction. This is the first Italian engine using heavy fuel which has yet appeared in public.

ENAMELLED CYLINDERS.

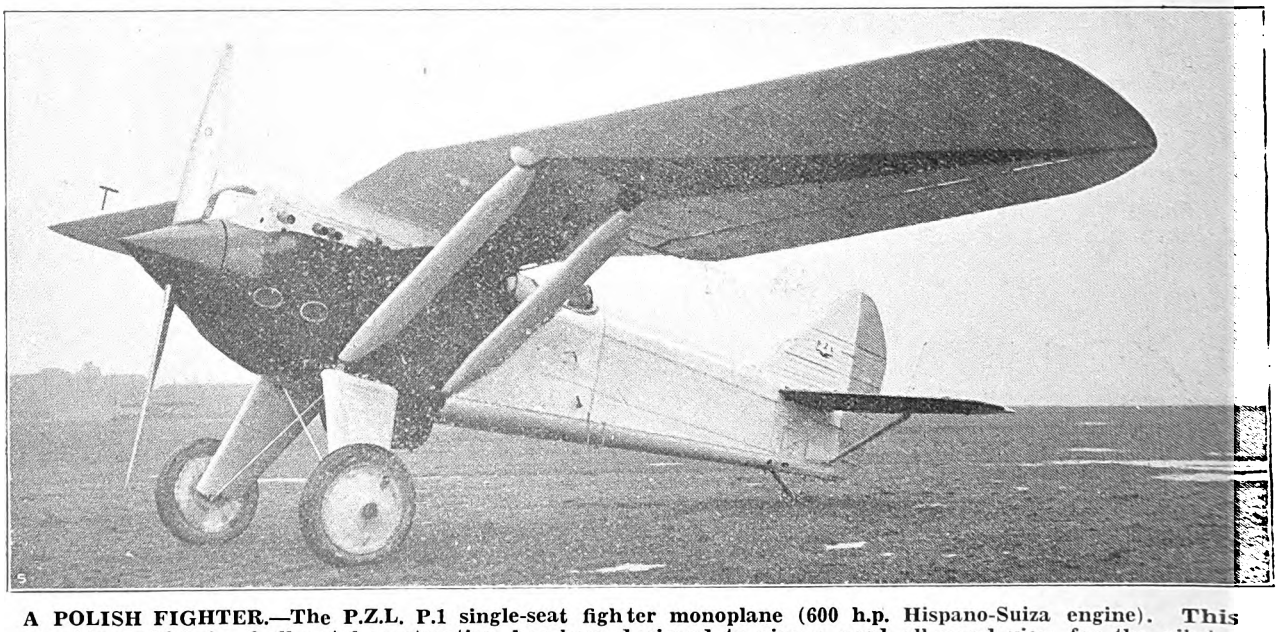
Sir,—On page 232 in one of the latest issues of THE AEROPLANE we noticed to our surprise your mention of cylinder enamel. It has been the American practice for a number of years to enamel the cylinders black with a high temperature baking enamel, as we have found that this improves the cooling somewhat as well as protects the cylinder material very excellently against corrosion. Besides, we think this might improve the appearance of the engine somewhat.

Unless the engines are running in an extremely hot climate this enamel is very resistant and we have found it unnecessary to re-enamel the cylinders for several hundred hours.

We have been experimenting with several different colours to make it possible to blend the engine with the colour-scheme of the airplane, and some day you might find the surprising combination of a green engine on a red airplane, or vice-versa.

Some weeks ago we found to our great surprise in connection with an airplane mounted with loud speakers that a Lycoming engine was called a Wright Whirlwind. The owner said that the exclusion of all other engine noises made this engine particularly suited for his purposes. I had the privilege of hearing the thing when he got through with it and it certainly was terrible. I thoroughly agree with you that another horror has been added to life.

(Signed) VAL CRONSTEDT,
Assistant Chief Engineer, Aero Engine Division,
The Lycoming Manufacturing Co.



A POLISH FIGHTER.—The P.Z.L. P.1 single-seat fighter monoplane (600 h.p. Hispano-Suiza engine). This machine, which is of all-metal construction, has been designed to give a good all-round view for the pilot.

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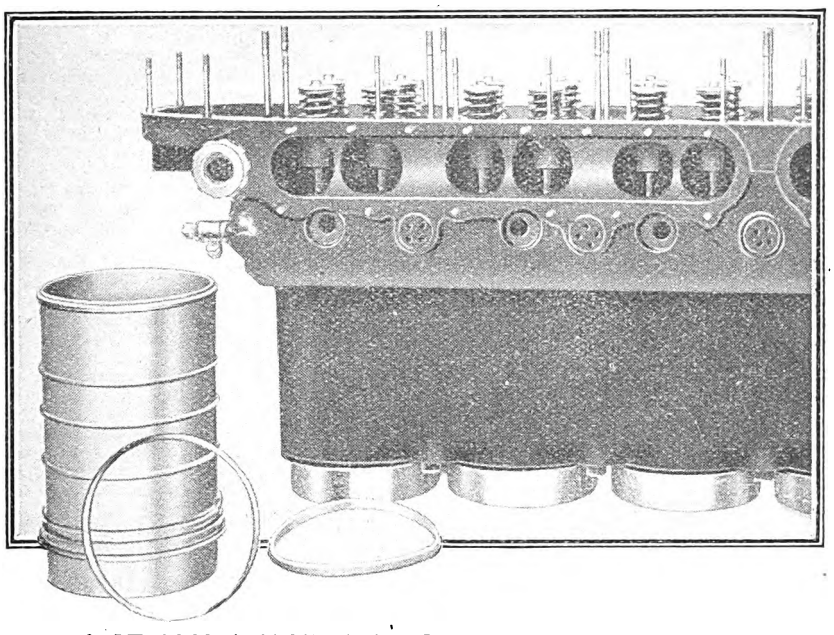

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(A)—Cylinder Construction

The Rolls-Royce 'F' and 'H' type cylinder liners are designed so as to be easily withdrawable, thus facilitating the removal of scale from the water-jackets during overhaul. These liners offer a high resistance to bad water corrosion owing to the heavy electroplating of their external surfaces.

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AN INTERESTING NEW ENGINE.

An interesting new type of internal combustion engine has recently been evolved by Mr. C. F. Caunter, who has developed an ingenious scheme for charging and exhausting a two-stroke engine without undue complication or multiplication of parts. The first experimental model weighs about 160 lbs. and though as yet unfinished is estimated, as the result of tests made with single-cylinder engines of the same type, to develop about 55/60 h.p. at 2,000 r.p.m.

If these figures are obtained in practice, the power-weight ratio is about 3 lbs./h.p. This figure together with the overall diameter of 33 in. compares favourably with existing types and should be capable of improvement.

The two-stroke engine has much to recommend it, especially on the score of low cost of manufacture and ease of maintenance. The objections to the use of this type for aircraft has been the difficulty of getting reasonable fuel economy and a good power-weight ratio. There has also been the difficulty of getting enough power out of an engine of this type.

The characteristic feature of the Caunter engine is the use of a stepped-piston which works in two super-imposed cylinders which open into each other.

The smaller cylinder, which is the furthest from the crank-case is the working cylinder. The other, which is closed at the top by the smaller diameter of the working piston and at the bottom by a ball-slide through which the connecting-rod passes, is the pumping cylinder and as this is closed at both ends it can be used in a double-acting capacity. The crank-case side is used for pumping fresh gas and the farther side for exhausting the burnt charge.

Gas is admitted to each pumping cylinder by a poppet-valve which is open for 180 deg. or the whole upward stroke of the piston. When this latter starts to move down, the mixture in the pumping cylinder and the transfer passage is compressed, whereas a vacuum is formed in the pumping cylinder on the other or anti-crank-case side of the stepped piston.

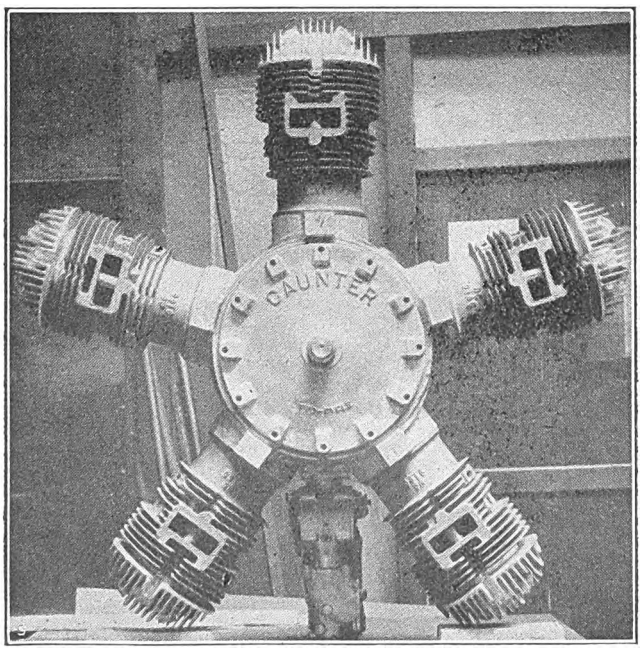
The working-face of the piston uncovers the main exhaust-port in the usual way and shortly afterwards a transfer passage is opened to the pumping cylinder, where, as previously mentioned, a partial vacuum has been formed. As a result, the remaining exhaust gasses are sucked into the annular space in the pumping cylinder around the smaller diameter of the working cylinder.

The inlet transfer is next uncovered in the normal fashion and through this the gas under pressure from the crankcase side of the downward-moving stepped-piston is forced into the working cylinder.

As the piston moves up, the inlet, main and auxiliary exhaust-ports are all closed. The exhaust gasses in the annular space in the pumping cylinder are being compressed and are finally transferred through a passage in the skirt of the piston to the main exhaust-port.

This arrangement provides for withdrawing the exhaust gasses under pressure and for a form of supercharging.

Mr. Caunter states that although this engine was built with parts which had to be made from specially prepared patterns, it only cost £100 to build. There seems reason therefore to believe that the £1 per h.p. engine could be produced in this type.



The Caunter five-cylinder radial two-stroke engine.

Mr. Caunter is anxious to meet someone who is interested in this engine with a view to producing it in quantity. His address is C. F. Caunter, 53, Shirehall Park, Hendon, N.W.4.

SPECIFICATION.

TYPE.—Five-cylinder air-cooled two-stroke engine.

CYLINDERS.—85 mm. (3.35 in.) bore by 88 mm. (3.47 in) stroke. Cast iron barrels and detachable aluminium heads. Cylinders each attached to crank-case with three tension rods. To avoid hot spots the auxiliary exhaust transfer-passages are detachable aluminium castings, which allow cooling air to pass between them and the cylinder walls.

PISTONS.—Stepped-type pistons with deflector-shaped heads. Cast in aluminium alloy with cast iron insets to take rings. Floating gudgeon-pins.

CONNECTING RODS.—Tubular section with slipper-type big ends secured to crank-pin with two large retaining rings. Rods pass through ball slides in base of pumping cylinder. Such ball slides only have to withstand peak pressure of 10 lbs. per sq. in.

CRANKSHAFT.—One piece single-throw type. Carried in no-gap type of ball-bearing in front cover for journal and thrust loads and in roller bearing in rear. The rear end of shaft runs in plain bearing in rear cover.

CRANKCASE.—One piece Alpax casting with detachable front and rear covers. Induction ring, valve pockets and tappet-guide supports are all part of main casting. Rear cover carries magnetos, oil pump and rev-counter-drives. Engine mounted by ten 3/8 in. bolts which pass through stout flange at rear of crank-case.

VALVE GEAR.—One large valve for inlet of gases to each pumping cylinder. This valve is always cool and has only to withstand a pressure of 10 lbs./sq. in. They are driven straight off a cam on the crankshaft.

CARBURATION.—One Claudel-Hobson 45 mm. type RRCH supplies mixture to the induction pipe from which the mixture is sucked into the pumping cylinders through the inlet valves.

IGNITION.—Two B.T.H. magnetos type G.E.5 supply current to two plugs per cylinder.

LUBRICATION.—Dry sump-type with duplex-type gear-pump, oil is supplied to big end by way of bearing in rear cover and hollow shaft.

DIMENSIONS.—Overall 33 in. (.839 m.).

WEIGHT.—160 lbs. (77.7 kgs.).

PERFORMANCE (estimated).—55/60 h.p. at 2,000 r.p.m.

AERODYNAMIC RESEARCH AT TEDDINGTON.

The Report of the Aerodynamics Department (National Physical Laboratory) for the Year 1929. 24 pages and plates. Published by H.M. Stationery Office at 2s. and obtainable from THE AEROPLANE Book Department, Cannon House, Pilgrim Street, E.C.2.

A useful scheme for the preservation of eyesight and money is in being in relation to The Annual Report of The National Physical Laboratory. This Report is a large tome of many pages which costs 11s. As most people are only interested in one particular department, the splitting of the Report into separate departmental affairs is an excellent scheme.

The report of the Aerodynamic Department gives in language more or less to be understood by the layman a summary of the various researches which have been made during the year 1929. One may thus gain some idea of what has been found out and on what lines development is to be expected.

Various aspects of the new compressed air tunnel are explained and an account of the design of various component parts is given. Much space is devoted to researches into the flow of the Boundary Layer.

The question of the cooling of air-cooled engines has been investigated, and, if the cooling economy be expressed as the ratio of the rate of heat transmission to the power absorbed in cooling, an improvement of 20 per cent. for one system and 50 per cent. for another has been obtained by simple means. The first system used streamline guides alongside the cylinder, and in the other the cylinder was placed in ducts of various shapes.

An account of the continued general investigation into the spinning of aeroplanes is given and one learns how models of a Bristol Fighter are dropped from the roof of the large balloon shed at Farnborough. Cinema films are taken of their wild career earthwards and then analysed.

Further problems concerning Wing Flutter have been solved, and the investigations have also been extended to include the flutter of airscrews and of the tails of aeroplanes.

Mention is made of Mr. Townend's well-known paper on the Townend Ring, which actually has the terrifying official title of "Reduction of Drag of Radial Engines by the Attachment of Rings of Aerofoil Section, including Interference Experiments of an Allied Nature, with some further applications."

Finally an investigation into the air-flow behind a 1/5000 scale model of the Rock of Gibraltar was made in an effort to find out the flow pattern, and areas where the landings of seaplanes in any but a light wind would be dangerous.

[This is amusing, for one remembers posing a somewhat similar question about the air-flow over Gibraltar to Sir Napier Shaw, Chief of the Meteorological Society, in 1910 or thereabouts, and getting an answer which indicated that Science had no answer to give in that day.—C. G. G.]

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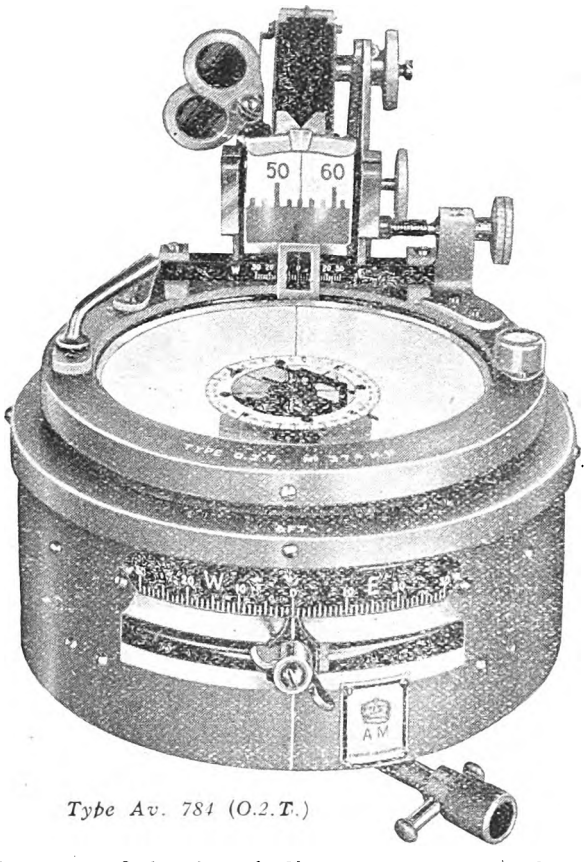
"HUSUN" APERIODIC COMPASS



Type Av. 784 (O.2.T.)

An Observer's Compass of the Aperiodic type developed from the well-known type O.2. It may be used to show the Magnetic Course steered, and the Magnetic Bearing of an object, as does the O.2., but by setting the Magnetic Variation on two scales, the Observer is able to read the True Course and True Bearing, instead of the Magnetic Course and Magnetic Bearing.

If the lower scale is set to 0, the lubber point will show the ***Magnetic*** Course, but if the Compass is turned inside the outer case so that the lower scale is set to read the correct Magnetic Variation, the lubber point will have been moved the necessary amount to read the ***True*** Course.

If the reading on the upper scale is 0, then all bearings taken will be ***Magnetic***, but if the prism (which is mounted on a traversing screw), is moved sideways until the reading shows the correct Magnetic Variation, the bearings shown against the Compass Card will be the ***True*** Bearings.

Dimensions—Overall Depth, 8¾ ins. Weight—6 lbs., 13 ozs.

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TO MEASURE HIGH ROTARY SPEEDS.

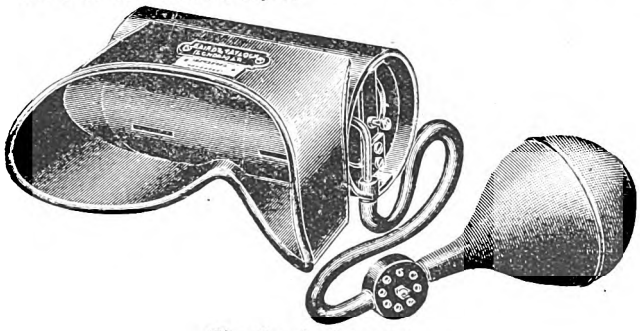
When objects are rotating or vibrating at high speeds, the straight-forward methods of measurement by means of counters and clocks become unreliable or unworkable. One of the most satisfactory methods that can be used is the stroboscopic. The stroboscope is an instrument which makes visible a rotating or vibrating object at some position in every period of its motion.

This can be done by having a rotating shutter with one or more apertures through which the object is viewed. At certain shutter speeds the moving object will appear to be at rest. Whether this speed is the same as, or is some multiple of, the speed of the shutter, depends the number of apertures which are used in the shutter.

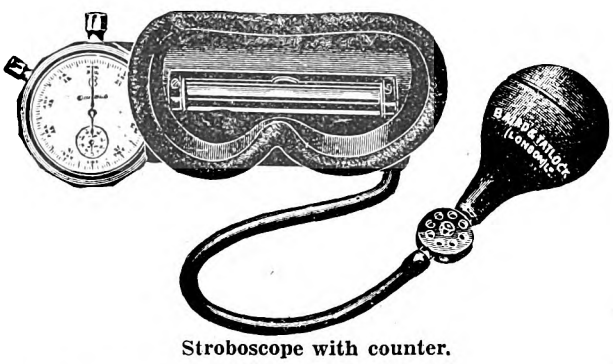
A neat adoption of the principle has recently been patented by Mr. H. Whidbourne and Mr. Bartrum. In the instrument which they have developed the place of the shutter is taken by a drum with various slots in it. At one end of the drum is a turbine arrangement. The whole drum is very light and is carefully pivoted so that it can be spun up to 4,000 r.p.m., or even more, by blasts of air which are allowed to impinge upon the turbine from a small rubber bulb of the motor-horn type.

The instrument is extremely compact and weighs less than 2 lbs. The drum is about 4 in. long with a diameter of 2½ in. There is a viewing shield which shuts out all extraneous objects from the eyes of the observer.

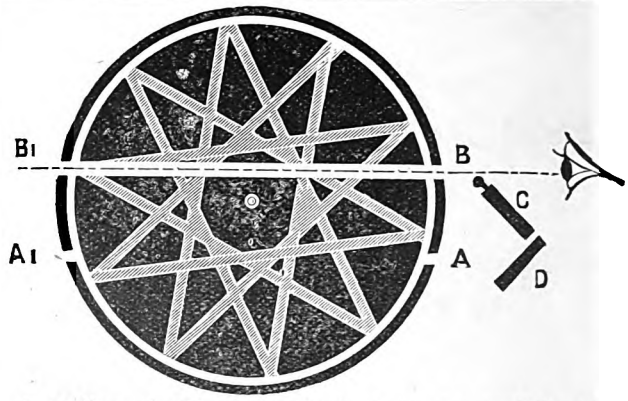
The instrument is sold with, or without, a modified form of Hasler speed recorder, and can measure up to 40,000 r.p.m. When sold without the recorder the instrument is used for the analysis of motion, as a slow motion effect can be obtained by a stroboscope when it is rotating at certain speeds relative to the viewed object.



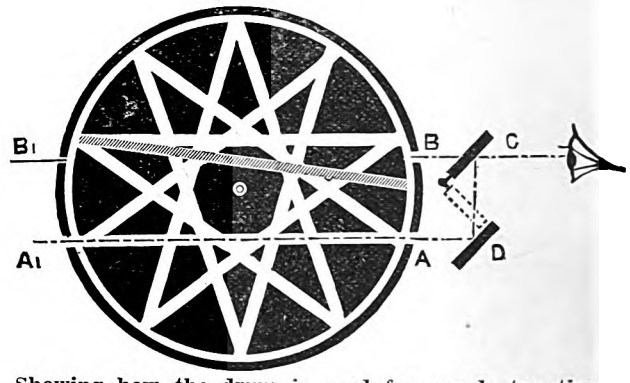
Simple stroboscope.



Stroboscope with counter.



A section of the stroboscope's drum as used for determining engine speeds of the same range as those of the drum.



Showing how the drum is used for speeds ten times those of the drum. Note how the two mirrors are used.

The drum has one pair of slots for viewing speeds within the range of which the drum itself are capable. For higher speeds ten pairs of slots are used and an arrangement of mirrors in the instrument is used to mask the pair of single slots. When one talks about a pair of slots one refers to the fact that each slot is in halves, one for each eye.

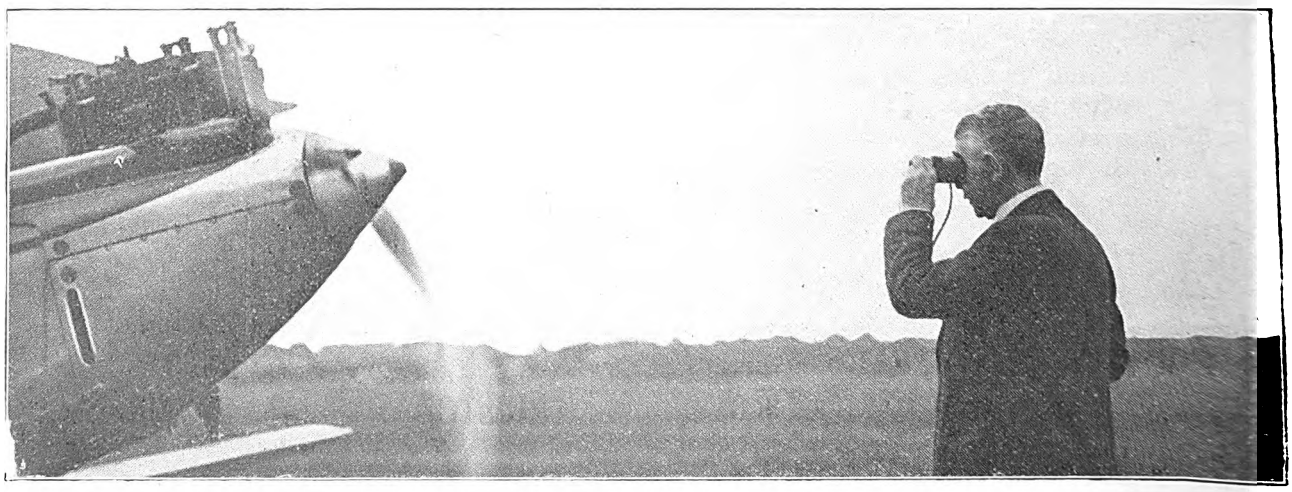
The ten pairs of slots allow the eyes to receive ten images of the object for each revolution of the drum so that the speed of the object is ten times that of the drum.

The instrument is being made and marketed by Baird and Tatlock (London) Ltd., 14, Cross Street, E.C.1, at five guineas without the speed recorder, and at twelve guineas with it.

A CANADIAN MERGER.

A concern known as the Aviation Corporation of Canada has been formed which will have under its control Western Canada Airways, Canadian Transcontinental Airways, Canadian Airways and several other smaller companies.

Mr. James Richardson, a well-known Winnipeg business-man, a director of the Canadian Pacific Railway, and at one time the owner of Western Canada Airways, is understood to be the moving spirit in this concern. Both the Canadian Pacific and the Canadian National Railways are interested in the enterprise.



SIMPLE TO USE.—The Whidborne Stroboscope is being used by the gentleman on the right to check the speed of the Cirrus Avian engine.

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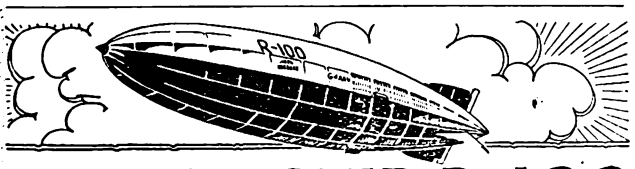

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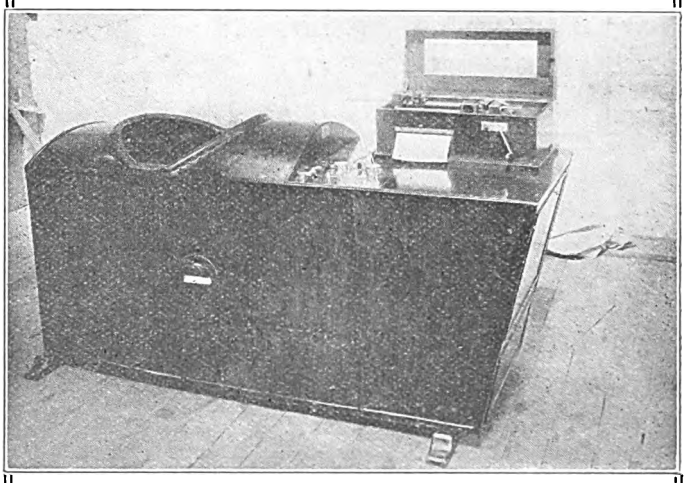

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Extract from "The Aeroplane" report on the King's Cup Race held on 5th July, 1930: . . . . . Mrs. Butler whose companion was Miss Sale-Barker, who was discovered by, and has since vindicated, the Reid Aptitude Indicator,—between them they put up a very fine performance, and flew into fourth place.

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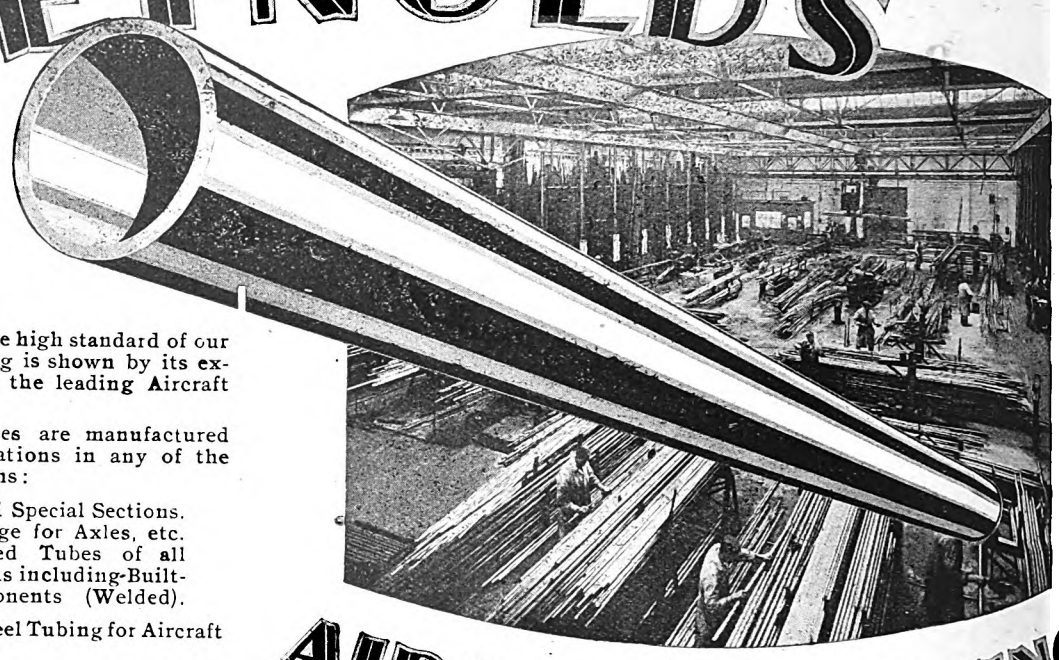

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COMMERCIAL AERONAUTICS.

SIFTING THE SANDS OF STATISTICS.

By F. D. Bradbrooke.

Statistical review of the World's Air Transport is a popular pastime, and the unfavourable comparison of the English effort thereat with everybody else's takes rank as a popular—and very much indoor—sport.

Statistics are a strange commodity, and even if they are *full* enough to convey the truth they may also be so presented as to prove any degree thereof or digression therefrom. Not only do lukewarm admirers of British Aviation *dish* up the mathematics of modified rapture, but strictly neutral contemporaries are led to quote the same array of mournful numbers. When the actual figures themselves are erroneous, as sometimes happens, their tendency to exalt others at our expense is strangely consistent.

In its issue of July 19 that eminently respectable paper *The Manchester Guardian* published certain information from its Geneva correspondent, who retailed the statistics compiled by the League of Nations Transit and Communications Section. Among other things he wrote:—

> According to the most authentic sources (the Year Book for Great Britain and the official documents of the French, German, United States and Italian Air Ministries) each kilometre of air transport cost the taxpayer in 1920, 20 francs for the British lines in Europe (but 90 to 100 francs for the British Empire air routes), 14 francs for the German airways, 17 francs for the French airways (whose task is, we think, the most difficult of all), 12 francs in Italy and 11 francs in the United States of America.

[Presumably these are Swiss francs, at nearly a shilling apiece, and not French francs at twopence each.—C. G. G.]

In a previous paragraph the correspondent of *The Manchester Guardian* stated that the most economically sound service was run by the Netherlands K.L.M. on a subsidy which amounted to three francs per kilometre-ton. The *supremacy* of K.L.M. in the economic field is not disputed for a moment, even though their own official figures show the relatively insignificant difference of 3½ francs instead of *three*. But why quote the K.L.M. subsidy on the basis of kilometre-tons while the remaining figures are based on kilometres alone? Without for a moment grudging this *famous line* its just meed of credit, one would like to see the subsidy figures for the other countries on a comparable basis.

Without bothering to emphasise the incorrectness of the figures as given, one may point out that a "per kilometre" basis is wholly valueless as a comparison. In fact, the incorrect quotation of the British figure, which is about 15 francs per kilometre instead of 20, the ludicrous "per kilometre" basis of comparison, and the parenthetical comments seem to indicate that this department of the League of Nations was much more concerned with making a good case for French enterprise than with general accuracy.

Admittedly, the French companies have made some fine efforts to extend their services,—such as the postal route across the South Atlantic by the *Compagnie Générale Aéropostale*. But this venture has earned sensational recognition rather than profits, and there is no reason why figures should be falsified to enhance its lustre.

Unfortunately, the figures in question, which are more than questionable figures, were published in all good faith by *The Manchester Guardian*, and have been reproduced just as innocently by other English contemporaries, whose specialised knowledge is evidently not equal to the task of winnowing the pronouncements of the League of Nations.

Subsidy Fallacies.

Where subsidies are the subject of argument the kilometre comparison is the only one by which British commercial air-lines, which, sad to say, means only Imperial Airways Ltd., can be made to take a low place in the accounting—unless perhaps one quoted the subsidy per machine, which would be equally ridiculous.

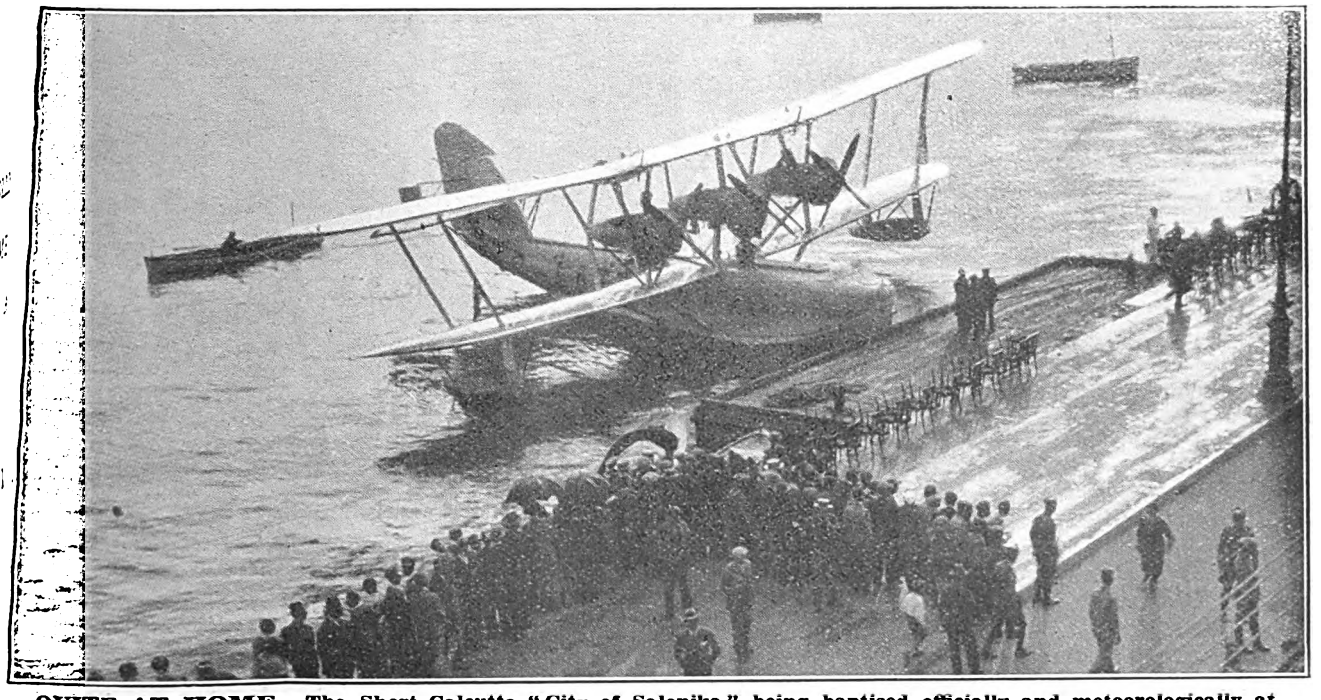
The whole object of Government support is presumably to encourage the volume of air traffic, passengers, freight and mail, which passes over the national air lines. Rightly or wrongly, Imperial Airways Ltd. consider that their task is best performed with machines of fair size and a carrying capacity of 1½ to 2 tons of paying load. Other countries do not specialise so sharply and operate plenty of aircraft of very much smaller size. But for the purposes of the League of Nations' statisticians these small machines fly kilometres of exactly the same length as do the Argosies, even though they carry only a quarter the load,—which, as Euclid might say, is absurd.

This defence would be quite specious without figures to support it, so, in spite of a deep distrust of figures in controversy, one ventures to put forward a mathematical parry to a mathematical attack. That is only fair, and if, as a famous orator said, "figures never lie, but they may be made to present untruths," the untruths should for very justice be more or less evenly divided.

In 1929 France received a subsidy which amounted to 16s. 9d. per ton-mile, and in the same year Imperial Airways got 6s. 9d. per ton-mile. The German figure, which is for 1928, is 9s. 4d. The length of some of the French services naturally puts up the expense of their operation and reduces the total loads carried. But it is also fair to notice that if the Empire routes of Imperial Airways were left out the ton-mile subsidy on their European routes works out at 3s. 4d.

American Methods.

The same sore subject of subsidies has received newspaper attention after the publication of comparative figures by the leading American Aviation paper, *Aviation*. Inci-



QUITE AT HOME.—The Short Calcutta "City of Salonika" being baptised officially and meteorologically at Salonika, when the England—India route was diverted to that city from Italy.

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dentally, the compiler was unable to get 1929 figures for European lines, and therefore gave the 1928 statistics for Europe and those of 1929 for America. His explanation was, of course, ignored by most of those who quoted him, and America generally got the benefit of a year's progress in the international journalistic conclusions.

We are often told that the U.S. air services get no subsidy, and this is literally true; but the postal contracts which they are granted, and upon which the Federal Government takes a very large annual loss, amount to the same thing in effect. [With the difference that the air lines in America are paid for doing work of definite use to the community, and not for merely taking empty chairs or unnecessary engines for joy-rides, as on some European lines.—C. G. G.]

The sum of £2,770,000 was paid by the U.S. Postal Department in 1929 to various commercial companies, as against subsidies of £960,000 in Germany, £940,000 in France, and £230,000 in England for 1928.

On the ton-mile basis we find that the U.S.A. paid 8s. 1d. for each ton-mile. The 1928 figures which were quoted for Europe show Germany paying 8s. 8d., France 15s. 8d., and England 5s. 7d. And the low British figure was before the latest and longest Empire route, to India, was inaugurated.

Pure Size.

Unfavourable comparisons have also been drawn from the figures given in *Aviation* between Britain's merchant air fleet and those of other nations. U.S. lines are shown as possessing 619 aircraft, while Imperial Airways owned 15. Even if the figures were for the same year, instead of being for 1929 and 1928 respectively, the discrepancy would remain as gall and wormwood to certain proponents of British enterprise. [Rather naturally.—C. G. G.] They also see that American commercial machines flew 16 miles to every one flown on British lines, that German aeroplanes flew eight, and the French five over the same period. Also, England paid Imperial Airways one-twelfth of the sum which the U.S. merchant air services were paid for the operation of forty times the number of machines.

The last comparison has already been answered by the ton-mile cost figures, which show that the English taxpayer gets more load carried for his money than anyone else, except his Dutch friends,—and that, one supposes, is what he wants.

The British merchant air fleet is certainly much smaller than most enthusiasts would like to see it, but no statistics can ever be quite favourable until our air lines support themselves on the money they earn by their services. The expert who cries that commercial aviation must fly by itself, and that it should spread out into far corners of the globe, is arguing that everyone should have his cake after having eaten it.

In Great Britain itself there is little scope for successful air competition with excellent train services and all-pervading 'bus-lines. The distances are too small. Successful lines are already being run to Europe on a commercial basis, which compares very favourably with almost anybody else. And Europe is almost at saturation point in respect of air lines, so each country is naturally anxious to have its own.

Roads for Expansion.

The logical development of the future is in much wider fields of action,—to the more distant parts of the Empire and elsewhere. But the cost is tremendously high, and the necessary preparations colossal before passengers can conscientiously be solicited. Aerodromes must be prepared and accommodation provided for passengers and aircraft. The India route, while it encourages the enthusiasts, so affects the cost per ton-mile as to make the subsidy critics perspire.

But, as was pointed out by Mr. George Woods Humphery, the Managing Director of Imperial Airways Ltd., in his able articles in *The Times* recently, the most serious obstacle to progress is the mass of laws and regulations which hamper air-line development. Some countries insist on certain towns being put on the list of stops in return for permission to fly over their territory; sometimes the frontier must not be crossed after dark; or the service must not pass more than once a week; or the company may not own buildings; or charges for everything are prohibitive. [And, as Mr. Woods Humphery did *not* say, sometimes the local officials take as long messing about with the ship's papers as would be needed to fly the next 250-mile stage of the journey. All of which is in favour of an all-British high-speed line for mails, such as Mr. Barnard has pioneered. And passengers can go by the slow route.—C. G. G.]

Some people wonder why regular services are not run in something like the time of certain pioneer flights. The answer is that the first essential of a scheduled service is regularity in all seasons and conditions. A six-day service at 95 per cent. punctuality is better than a five-day schedule which is 80 per cent. dependable, and commercial operation bears several important differences from individual flights in the matter of maintenance.

Another vital necessity is the carriage of some load other than fuel, and most of the remarkable speed flights have been made in long hops which called for a fuel load even beyond airworthiness limits. [But, carrying mail only, hops of 1,000 miles at 200 m.p.h. (in 5 hours) are easy.—C. G. G.]

Regularity and Machine-Miles.

With its small fleet Imperial Airways, in 1928, maintained a regularity of 94%, as against France's 88.7% and Germany's 90.4%. In the following year American lines achieved 92.7% regularity.

The large fleet credited to American lines would naturally make the establishment of a high record more difficult than where only 15 aircraft are to be maintained if other factors were equal. But the record of machine-miles is illuminating.

The 619 commercial airplanes of the U.S.A. flew 32,700 miles each in 1929. In 1928 German machines averaged 31,700, and the French machines 18,000 miles. Imperial Airways machines averaged 68,200 miles each,—or more than double anyone else's. Not only is their record for regularity especially creditable with such figures, but a small fleet, hard worked, is obviously better efficiency than a more imposing stable eating its head off.

Passenger-Miles and Machine-Tons.

Even the miles per machine, and the subsidy per ton-mile, do not tell the whole story. An Argosy-mile is equivalent, for instance, to eleven Moth-miles, and the various sizes of aircraft in use abroad give the following results in paying-load (according to *Aviation*, and presumably including "complimentary" tickets, which are much more common in America and on the Continental routes than in the machines of Imperial Airways):—U.S.A. (1929), 125,000 passengers, 3,169 tons of mail and freight. Germany (1928),

AN EVELESS PARADISE.—An air view of some of the Monasteries on Mount Athos, where no female being is allowed to live,—not even a hen. This place is an easy sight-seeing flight from Salonika.

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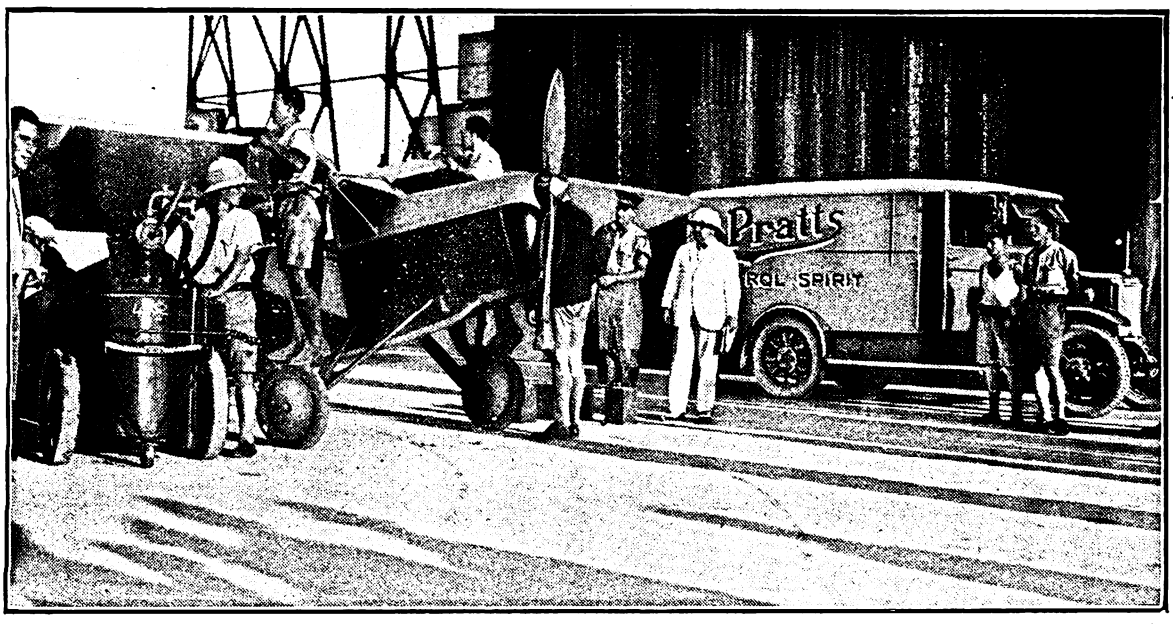
Malta & back in 26hrs. 25 mins.



Captain Barnard refuelling with Pratts Aviation Spirit at Malta, prior to his return.

"The engine ran perfectly"

In a letter referring to his Malta flignt, Captain C. D. Barnard writes:—*"I used your Aviation Spirit on my flight to Malta and back in two days. The engine ran perfectly on it and I had no difficulty in obtaining the spirit in Malta. Your organisation was excellent."*

ON

AVIATION
PRATTS
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THE ANGLO-AMERICAN OIL COMPANY LTD., 36 QUEEN ANNE'S GATE, LONDON, S.W.1

McC. 633

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120,711 passengers, 2,478 tons. France (1928), 21,000 passengers, 1,943 tons. Great Britain (1928), 19,935 passengers, 589 tons. Great Britain is at the bottom of the list, although Imperial Airways officials declare that the correct passenger figures for that year were 28,179.

However, taking an average of 11 passengers to the ton, and dividing the total by the number of machines in use, we find the American aircraft carrying an average of 25 tons each during 1929. In 1928 German craft averaged 67 tons, French 16 tons, and British 160. With the corrected passenger figure the English record works out to the even more encouraging one of 210 *tons per machine.*

The evidence seems to show that British Commercial Aviation is proceeding on lines as nearly economic as is consistent with reasonable expansion. It has admittedly refrained from projects which arouse the tempered enthusiasm generally accorded to fine but futile efforts, and is rather prone to delay until it can offer a service on reasonably regular schedule and with some prospect of earning something in relief of the subsidy.

In this respect Imperial Airways have to their credit the fact that, whereas the proportion of subsidy to gross receipts of the four principal French air transport companies averages 77 per cent., and the *Deutsche Luft Hansa* receives subsidy to the extent of 68 per cent. of total receipts, Imperial Airways' *earnings equal their subsidy.*

Meanwhile British merchant flying will continue to be the butt of statisticians to whom merit varies directly as numbers of aircraft. With her numerically tiny fleet Britain must make a contemptible appearance to any who persist in forgetting that each one averages twice as many miles as its nearest competitor among the nations, and carries three times as much load per annum. By so doing this small fleet performs all the service which the British Taxpayer can afford to support at present, even though he gets more for his money than others do. There is every reason to believe that when present plans for expansion come into being British Commercial aviation will show more work done, and at less cost to the taxpayer, than the present relatively small number of its aircraft implies.

THE GOLDEN OPPORTUNITY.

Transport of bullion by air has been a favoured practice of the banks for some time because it reduces the period during which the gold was not available to any bank for whatever purpose banks find for gold. The obvious step further has now been arranged between British gold shippers and Imperial Airways, Ltd.

Instead of shipping the gold by the first regular liner in the morning at 08.00 hours, to reach Paris at 10.30 hours and the bank some time later, when an hour at least of the banking day has gone, the consigners will deliver bullion for shipment at night, and Imperial Airways are now prepared to run night services when required for this purpose.

Transport and travel for any other purpose than the mere pleasure of motion are done more logically at night than at any other time. Good night train services will compete seriously with air travel for a long time to come merely because they offer comfort without waste of business hours. Night services for mail and goods by air undoubtedly offer the best immediate opportunities for business.

VALUED FRIENDS.—The wife and children of M. Zannas, the Greek Minister for Air, who has done so much to facilitate the task of our Air Line.

REDUCED PRICES.

Following the recent reduction of fares on some of the Continental services of Imperial Airways Ltd., cheaper fares are announced by the Air Union, of France. The journey between London and Paris will cost £4 4s. single or £7 19s. 6d. return from now on. A week-end return ticket will be obtainable for £7.

ON THE AIR ROUTE TO INDIA.—Kalonnaesi, on the coast of Greece. An ancient Greek temple may be seen on the top of the promontory.

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CARRYING ON

The Sydney-Brisbane service is run by Australian National Airways Limited with five Avro Tens.

During the six months up to June 1930 this is their record of service

DAILY SERVICE - - - - -	376 SINGLE TRIPS
PAYING PASSENGERS - - - -	2,741
DISTANCE COVERED - - - -	188,000 MACHINE MILES or 564,000 ENGINE MILES
LETTERS CARRIED - - - -	284,720
WEIGHING - - - - - -	7,118 lbs. (over 3 tons)

From the 1st June, a daily service was commenced between Sydney and Melbourne. The five Avro Tens now fly a distance equivalent to the circuit of the world, every thirteen days. Is this marvellous? No. Is it a record? We don't know. But it *is* reliability, it *is* carrying on. It's

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AVRO

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WIND AND WEATHER.

By Joan Bradbrooke.

On Monday, August 4, I flew from London to Berlin in five hours by the K.L.M. line. Although the wind helped us this was a very good showing, for the weather was so bad along our route that instead of leaving Croydon at 13.00 hours, as we were scheduled to, our pilot decided to wait for the next weather report, as one plane on its way across had landed at Flushing because of the bad weather and strong wind.

When, at 13.45 hours, we left Croydon in one of the new 18-seater Fokkers (3 Jupiters) the weather was still bad, but the wind was almost behind us.

These new K.L.M. Fokkers are, I should say, about the most comfortable planes in service just now. I liked the way the interior of the cabin had been decorated. The colour-scheme was quiet and restful, as well as harmonious. It was all most sensible, and had apparently been done with the idea of wearing well, looking well, and being easy to keep clean.

The chairs were comfortable, too, high-backed, with a movable, and soft head-rest, which could be adjusted to suit one's-self. Also, each chair had only three legs, the one at the back in the middle, which left more room for anyone sitting behind to put his legs, although there is more leg-room in this plane as a whole than in most.

Also, there was a most luxurious carpet on the floor of the cabin, the effect of which was somewhat spoiled by the narrow strip of blue and white checked cotton stretched down the aisle. This is, I believe, a regular Dutch custom, as Dutch housewives, noted for their carefulness and cleanliness, always put this blue and white check material on their newly cleaned floors. An excellent idea, no doubt, but it did spoil the rich effect.

The only fault I could find was that there were no instruments of any kind in the cabin, and the communicating door between the pilot and passengers was very solidly filled in with just two small round panes of glass through which one could see very little. I did manage to see the speed indicator, but that was all. Possibly the pilot likes a little privacy, and there is really no more reason why one should be allowed to see what is happening up in front in a plane than there is in a train, but for myself I like to.

It was bumpy going over, but the machine was quite steady. It may have seemed more so because in a high-winged monoplane one does not see the heaving of the wing as one does in a low-wing, or biplane.

We flew fairly high all the way across, about 3,000 ft.,—so the pilot told me, on landing at Rotterdam—with our speed indicator showing about 160 km. Over the Channel I noticed very few boats, and heard afterwards that a lot of Channel shipping had been disorganised because of the weather. We kept a mile or so out from the coast and I could not see much of it as it was too misty.

We arrived at Rotterdam at 15.45 hours. After landing we waited until five stalwart Dutch lads came up with queer hooks on long ropes. These they attached on the tips of the wings. It was most amusing to see these boys hanging onto the ropes and being dragged along while the plane turned and taxied up to the hangar end.

At 16.00 hours we left again, having changed into a 3-Titan 8-passenger Fokker, which seemed rather noisier than the 3-Jupiter and not quite so palatial. Ordinarily there is a wait of nearly an hour here, but as we were late we missed it. We made up time to Berlin, too, thanks to the wind, and arrived there at 19 hours, instead of 19.30.

One thing which surprised me was that at the aerodrome in Rotterdam several officials spoke English, as did the waiter in the restaurant, who was most efficient at adding up bills in both English and American money. But on arriving at the Tempelhof aerodrome in Berlin I could not find anyone that spoke English.

Coming back a few days later, the same way, but in 3-Titan machines throughout, I found it all more interesting and exciting.

We left Berlin at 13.30 hours with a very strong wind against us. Apparently this is the prevailing wind from Berlin to Rotterdam, as I noticed on the schedule that we were not due at Rotterdam till 18.05 hours.

Once again I was annoyed to find no instruments in the passengers' cabin. There was, however, a good-sized pane of glass in the pilot's communicating door, and by craning one's neck one could see the speed-indicator, but it was only by dint of going down on one's knees and peering upwards that one could see the altimeter, which is above the pilot's head.

Most of the time we flew about 700 metres, with the speed-indicator showing 145 km., although the wind against us was so strong that much of the time our actual speed could not have been more than 120 km.—by the map.

We kept running into heavy rainstorms with periods of clear weather.

Also, we ran into two thunderstorms, one of which we went through without taking any notice of it. The other was more exciting. We could see ahead of us a huge black wall of cloud, and started to lose height, by a series of S turns, very quickly, while one of the pilots hastily wound in the aerial. At first we thought we were going to land, but after getting down to about 150 m. we flattened out and kept going. There was no preliminary shower, it was like going into pea soup, the rain was so thick and heavy. There were several rather thrilling flashes of lightning, too, and I was glad our aerial was not trailing below us. The whole thing only lasted about a minute, and then we climbed again and had clear weather the rest of the way. It was my first experience of a real storm in the air, and I quite enjoyed it.

It was very bumpy, and two Americans with us were not entirely happy. It was their first trip, and they had not expected such a long one and were rather wishing, at times, that they had not yielded to their enthusiasm. The sight of a few wisps of cloud sailing along below us, and then a rainbow, rather cheered them.

We reached Rotterdam at 18.30 hours, about 25 minutes late, and found we had time for a cup of coffee before starting off again, as our other plane was waiting. We left there at 18.45 hours in clear weather, but still that very strong head wind and bumps. This time we flew at about 150 metres till we reached the English coast, when we climbed because of the Downs.

It was interesting to notice that of the eight passengers all had maps of our route and were following them quite closely. A map makes one's trip so much more interesting. I think, and these are excellent, on a large scale and easy to follow, and can be obtained from K.L.M.

At Ostende we caught up with an old Handley Page, to which one of the pilots turned round and drew our attention, and after we had passed it he looked in again and grinned cheerfully.

Instead of taking the usual route from Calais to Dover we cut across just past Grand Fort Philippe, and hit the English coast at about St. Margaret's Bay.

Crossing the Channel we passed several boats which were wallowing horribly in what must have been quite a heavy sea, so we pointed this out to our American friends, and told them how much more miserable they would have been had they come that way, and how much longer they would have had to suffer. Certainly, over seven hours is rather a long time to fly on one's first trip.

It was rather a new experience, flying over England at dusk, with the lighthouses winking along the coast and lights in solitary farmhouses and the towns all lit up. It gave things such an altogether different appearance, and made it harder to recognise landmarks. We could see the

THE LATEST FOKKER.—The Fokker F.IX eighteen-passenger commercial monoplane (three Gnome-Rhone Jupiter engines). This is the type of machine described in the article above.

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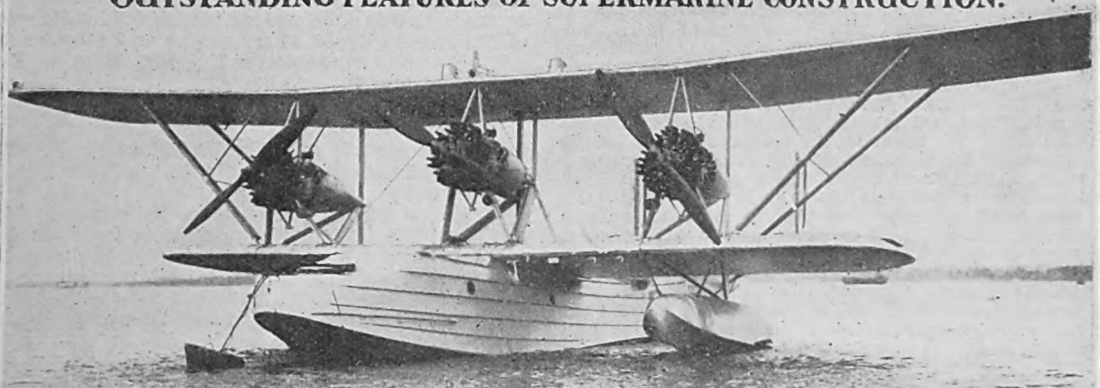

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flame from the exhaust pipes very plainly now, and the pilot had turned the lights on in the cabin. It was just like travelling in a train.

Over Biggin Hill we could see the lights of London stretching ahead, the beacon at Croydon with landing-lights and a flood-light waiting for us, as well as an illuminated landing T. We circled and made a perfect landing, to find impatient officials waiting on the tarmac to get rid of us. We got out, rather cramped from sitting for almost eight hours, but considering how very much longer it takes by boat and train, and the small difference in cost, and the comparison in comfort and interest—who wouldn't travel by air?

THE LATEST FOKKER PASSENGER-CARRIER.

The Fokker F.IX, which has recently come on the K.L.M. London—Amsterdam—Copenhagen—Malmo line, is designed not only as a European passenger-carrying vehicle, but also as a mail-carrier between Holland and the Netherlands Indies.

The most experienced K.L.M. pilot asserts that this aeroplane will climb on any two engines when fully loaded.

The machine, despite its size, has the usual graceful lines of the Fokker, and the cabin, which is fitted with the new type K.L.M. chair, with simple, easily adjustable head-cushions, gives an impression of spaciousness and above all, of solidity.

The Fokker F.IX is a three-engined commercial airplane for twenty passengers and two pilots, with three Jupiter air-cooled engines of about 500 h.p. each.

Although all the experience acquired with the F.VIIb-3m has been embodied in the F.IX, this new machine is not merely an enlarged F.VIIb3-m. The greatest deviation from the F.VII-3m consists in the fact that the cockpit is more forward and the rear part of the fuselage is raised thereby, ensuring a favourable angle in landing. In keeping with present-day principles, the cockpit is entirely closed in.

DESCRIPTION.

TYPE.—Three-engined tractor monoplane. Commercial plane for 18-20 passengers and two pilots.

WING.—One piece. Secured immediately to the fuselage with four bolts. Plywood covering.

FUSELAGE.—The pilots' cockpit has dual control, is placed in front of the wing and entirely closed in. The windows may be opened or closed. There is a door communicating with the passengers' cabin. To the rear of this cabin is the lavatory and a large hold for luggage.

ENGINES.—Three air-cooled Gnôme-Rhône Jupiters, Series VI, one in the nose of the fuselage and one on either side under the wing. Any other kind of air-cooled engine of approximately the same capacity may be installed.

FUEL SYSTEM.—Tank in wing. Capacity 488 Imp. gallons (2,220 litres). Gravity feed. Oil tanks behind engines.

CONTROLS.—Dual controls abreast. Steering columns with wheel for ailerons. Ailerons unbalanced. Elevator and rudder compensated. Stabiliser and fin adjustable during flight.

LANDING GEAR.—In two halves, each consisting of a chrome nickel-steel axle with stay attached to lower fuselage longeron and a shock-absorber strut secured to the power-egg. Shock-absorbers of interchangeable rubber rings. Wheel-brakes may be operated independently of each other. Tail-skid with broad flat shoe to avoid damaging flying ground. Tail-wheel supplied if required.

DIMENSIONS.—Span 89 ft. (27.127 m.), Length 63 ft. 4 in. (19.304 m.), Height 15 ft. 9 in. (4.801 m.), Wing area 1,109 sq. ft. (103 sq. m.).

WEIGHTS AND LOADINGS.—Weight empty 12,012 lbs. (5,455 kgs.), Disposable load 7,824 lbs. (3,550 kgs.), Crew 353 lbs. (160 kgs.), Fuel 2,953 lbs. (1,340 kgs.), Oil 286 lbs. (129 kgs.), Passengers and luggage 4,232 lbs. (1,917 kgs.), Weight loaded 19,836 lbs. (9,000 kgs.), Wing loading 17.8 lbs./sq. ft. (86.9 kgs./sq. m.), Power loading 13.2 lbs./h.p. (6 kgs./h.p.)

PERFORMANCE.—Max. speed 130 m.p.h. (209 km.hr.), 115 m.p.h. (185 km.hr.), Min. speed 67 m.p.h. (109 km.hr.), Climb to 3,280 ft. (1,000 m.) 7 min., Climb to 6,560 ft. (2,000 m.) 16.5 min., Climb to 9,840 ft. (3,000 m.) 31 min., Service ceiling 11,808 ft. (3,600 m.), Absolute ceiling 14,432 ft. (4,400 m.), Absolute ceiling on two engines 3,936 ft. (1,200 m.), Range 5½ hours or 590 miles (950 km.), Starting run with wind 0-2 m./sec. (0-6 ft./sec.) 820 ft. (250 m.), Landing run with use of brakes 900 ft. (274 m.).

CIRCUMSTANTIAL EVIDENCE.

M. Barbot has just delivered a two-seat Fokker military biplane from the Fokker works at Amsterdam to the Nieuport aerodrome at Villacoublay.

This has given rise to a rumour in France that the Fokker Company may be joining the *Société Générale Aéronautique*, a big French group of aircraft and aero-engine makers, which includes the Nieuport-Delage company.

AN AUSTRALIAN PIONEER COMPANY.

The Queensland and Northern Territory Aerial Services, Ltd., much better known as Qantas, was formed in 1920 when Civil Aviation was still decidedly in the adventurous era. Some of the reasons for its persistence and ultimate success may be deduced from the names of certain of its founders, such as Alexander Kennedy and Fergus McMaster.

Mr. Hudson Fysh, who is now managing director, recently related, through an Australian contemporary, how the small company centred at Longreach struggled through the early days of apathy and opposition and gradually spread its services until 1927 when it formed a flying school and taxi service in Brisbane. In 1929 the first air mail out of Brisbane was carried by Qantas, and now the administrative centre of the company has been moved from Longreach to Brisbane, where its major operations have become preponderant.

In ten years Qantas have flown well over a million miles and firmly established air mail as an ordinary facility in the lives of people in the regions which it serves. Its cargoes have included such varied commodities as butter, snake-skins, live chicks, geological specimens white mice and gramophones. Its taxi charters have been used to convey beer to a floodbound hotel, to carry a shearing party, and to capture car-thieves.

In short, Qantas has pioneered commercial aviation in Queensland and built up a public confidence which is the result of good work and is bringing continued good support. And Mr. Hudson Fysh has the best of reasons for being proud of himself—he set out to do a job and he has made it a complete success. No man can do more than that.

AN AIRWORK EXTENSION.

For some time past there has been a rumour that Airwork Ltd., of Heston, was to extend its activities to cover aerial photography in all its commercial forms.

This rumour is now substantiated by the announcement that Aerofilms Ltd. which was formerly a branch of the Aircraft Operating Co. Ltd. has been bought by Airwork Ltd.

The reason for this move is that the Aircraft Operating Co. Ltd. has found that its extensive air survey contracts in various parts of the World, notably in South America and Africa, have now become so large an undertaking that it has decided to concentrate on this class of work and to relinquish its interest in Aerofilms Ltd., which branch was devoted solely to photography in the British Isles.

In future the Aircraft Operating Co. and Aerofilms Ltd. will work separately although for the present their headquarters will remain in the same building at Hendon.

Both Major Hemming and Major C. K. Cochran-Patrick, whose duties as directors of the Aircraft Operating Co. involve frequent journeys abroad, have left the board of Aerofilms Ltd., and Mr. H. N. St. V. Norman, a director of Airwork Ltd., has become Chairman of Aerofilms Ltd.

Aerofilms Ltd. will continue to do aerial photography all over the British Isles and will endeavour to enlarge its scope in its relation to British industrial development. An example of this enlargement is supplied by the establishment of the Heston depot where advice and supplies of materials will always be available for the edification and convenience of present and future clients.

CIVIL AVIATION AT GENEVA.

Recently the League of Nations Committee on Co-operation between Civil Aviation Undertakings considered a programme of investigation. Sir Sefton Brancker, Director of Civil Aviation, is the British member.

Combined transport has attracted a great deal of attention, and the Committee proposes to issue an international guide book which will set out clearly the various means of transport, with time tables, postal regulations, and all information necessary to travellers who wish to combine air, rail and steamship travel to best advantage on a night-and-day journey.

The Committee also intend to establish an international chart of the more urgently needed air routes.

Aviation insurance was another important feature of the discussion, especially proposals for an internationally valid system of insurance for pilots and passengers. A plan to pool funds and resources among various air lines was also mentioned, but the last two topics were not discussed to any decision.

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Programme arranged by the
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for
W. LINDSAY EVERARD, M.P.

EVENTS

1. **RALLY. 12.15 p.m.**
2. **RACE FOR S.B.A.C. CUP**
   Open to Light Aeroplane Clubs only.
3. **RACE FOR AIR LEAGUE CUP**
   Team Race for Members of Light Aeroplane Clubs.
4. **ROYAL AIR FORCE DISPLAY**
   By No. 43 (Fighter) Squadron.

ALSO HUMOROUS ITEM, AEROBATICS AND SPECTACULAR SET PIECE

Sunday, September 7th

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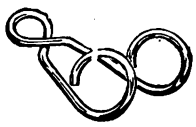

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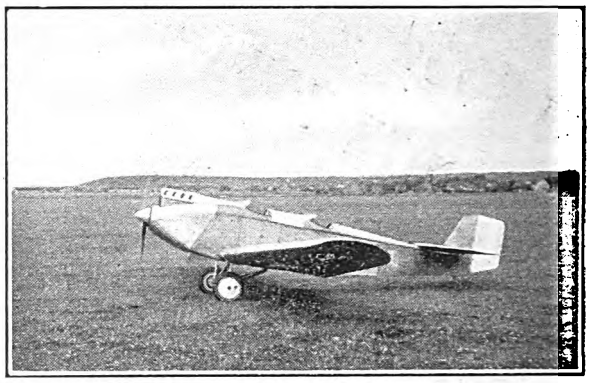
KLEMM CIRRUS



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THE LIGHT AEROPLANE
AND THE FLYING CLUBS.

AN AMERICAN CIRRUS DERBY.

American Cirrus Engines Inc., the American licensees of the British Cirrus Company, with a view to encouraging the use of their engines in the face of competition from a large number of new makers of four-cylinder-in-line air-cooled engines, have recently organised what was known as an "All-America Derby" for aircraft fitted with engines of their production.

This contest took place between July 21 and Aug. 3 and was over a circuit from Detroit by way of Buffalo, New York, Cincinnati, Little Rock, Houston, San Angelo, Douglas, Los Angeles, Ogden, Lincoln, Chicago, and back to Detroit, a distance of 6,533 miles.

The only restriction in the race, as already mentioned, was that all aircraft had to be fitted with an American Cirrus engine, and several distinct types were available for use. The American Cirrus company has inverted the Cirrus, and this version of the engine is known as the Ensign Hi-drive. Also, the company has acquired the rights for the de Palma supercharger and has developed a model suitable for use on both the upright Cirrus and the inverted Ensign.

In these respects the American licensees have gone ahead of the parent company, and their astute move in promoting an ambitious race and providing a sum of $25,000 for the principal prize-money at a time when aviation in the United States is labouring against a temporary wave of adversity confirms once again the idea that the American business man is fully alive to the value of advertising,—particularly at a time when business is wanted.

Approximately $40,000 was offered in prizes, of which the first, second and third prizes of $15,000, $7,000 and $3,000, respectively, were provided by American Cirrus Engines Inc. Except for $500 given by the A.C. Spark Plug Co. the additional money was put up by the various cities over which the tour passed.

Of a total of twenty-four entries eighteen aeroplanes left Detroit on July 21 in the contest.

All machines left Detroit in the order of their entry number. No aeroplane was given a handicap over any other, but the order of departure from each subsequent control was governed by the order of the best elapsed times of the competitors over the previous laps of the circuit.

The following is a list of the starters in the race, together with their racing numbers and brief particulars of the various machines.

1. *Command-Aire "Little Rocket."* Built by Command-Aire, Inc., Little Rock, Arkansas. A low-wing monoplane with an upright supercharged Cirrus engine, very much like the D.H. Tiger Moth in appearance. It has a monocoque fuselage and except for the upper surfaces of the wings and control surfaces the whole machine is covered with plywood. The undercarriage shock absorbers are within the wheels. Unofficially claimed to have a top speed of 170 m.p.h. Pilot: Lee Gehlbach.

3. *Great Lakes biplane.* Built by the Great Lakes Aircraft Corpn., Cleveland, Ohio. This is a standard type with the inverted Ensign engine without supercharger and is specially streamlined for the contest. Pilot: C. W. Meyers.

4. *California "Cub."* Built by the California Aircraft Corpn., Los Angeles, California. A high-wing braced monoplane with the upright Cirrus without supercharger. Pilot: Larry Brown.

5. *Laird "Vagabond."* Built by the E. M. Laird Airplane Co., Chicago, Illinois. This is a diminutive prototype of the standard Laird single-bay biplane and has a supercharged inverted Ensign engine. The fuselage is a framework of duralumin tubes assembled with sleeve fittings. The undercarriage is of the cross-axle type and the wheels are Goodyear Air-Wheels. The pilot's cockpit is streamlined in with a sliding transparent cover. This machine is claimed to have a top speed of 160 m.p.h Pilot: Herman Hamer.

6. *Mono Special.* Built by the Mono Aircraft Corpn., Moline, Illinois. This is a middle wing monoplane with the upright Cirrus engine and supercharger. The machine is said to have a top speed of 160 m.p.h. Pilot: "Stub" Quinby.

7. *Smith monoplane.* Built by two brothers named Smith who operate a flying school in Portland, Oregon. It is a low-winged monoplane with the supercharged upright Cirrus engine. Pilot: G. B. Smith.

8. *Gee Bee Sportster.* Built by Granville Brothers, Springfield, Mass. A low wing monoplane which has been built primarily for aerobatics. It is said to have a top speed of from 145 to 150 m.p.h. Pilot: Lowell Bayles.

9. 12, 13 and 20. *Great Lakes biplanes.* Built by the Great Lakes Aircraft Corpn., Cleveland, Ohio. All standard types with the upright Cirrus engines, but 12 and 13 have superchargers. Pilots: W. R. Cahill, W. H. Holliday, J. Meehan, and C. Coffrin.

16. *Cessna monoplane.* Built by the Cessna Aircraft Co., Wichita, Kansas. This is a middle wing open-cockpit monoplane specially built for the inverted and supercharged Ensign engine. Pilot: Stanley Stanton.

17. *Weddell-Williams monoplane.* Built by Weddell-Williams, Patterson, Louisana. A low wing monoplane with the inverted and supercharged Ensign engine. Pilot: J. R. Weddell.

18. *Hosler monoplane.* Built by Russell Hosler. This is a low wing monoplane with a monocoque fuselage and a single central landing wheel of the Goodyear Air-Wheel type and wing-tip skids. The central wheel is streamlined in with a pantaloon fairing. The whole machine is mainly of wood and is covered with plywood with the exception of the tail surfaces and ailerons. It is fitted with the inverted and supercharged Ensign Engine. The single pilot's cockpit is covered in with a transparent sliding windshield. Pilot: Russell Hosler.

21. *D.H. Moth.* Built by the Moth Aircraft Corpn., St. Louis, Mo. A standard American-built Moth with an upright supercharged Cirrus engine. Pilot: John Kruttschmitt.

22. *Mercury Racer.* Built by the Mercury Aircraft, Inc., Hammondsport, N.Y. A thick-winged low wing monoplane with a retractable undercarriage. Pilot: Harvey Mummert.

23. *Todd Special.* Built by E. B. Todd, of Pueblo, Colorado. A low wing monoplane with the inverted supercharged Ensign engine. Pilot: E. B. Todd.

25. *Ogden Osprey.* Built by the Ogden Aircraft Corpn., Inglewood, California. This is a three-engined cabin monoplane with standard upright Cirrus engines without superchargers. This machine is very much like the Westland Wessex monoplane in general arrangement. Pilot: H. H. Ogden.

Of the eighteen starters ten completed the course.

Mr. Lee Gehlbach, in the Command-Aire Little Rocket, led the field from the start, and he covered the 6,533-mile circuit in 43 hrs. 35½ mins.' flying time, or at an average speed of 127.1 m.p.h. On the lap from Detroit to Buffalo he covered the 222 miles at an average speed of 200.15 m.p.h., with the aid of a strong following wind. Including his lap prizes, Mr. Gehlbach won a total of $17,350 (£3,470 approx.).

Mr. Lowell Bayles, in a Gee Bee Sportster, won second prize with an average speed of 116.4 m.p.h., and Mr. C. W. Meyers, in a Great Lakes Speedster, won third place with a speed of 107.3 m.p.h.

The remaining finishers were: H. H. Ogden (Ogden Osprey), fourth; W. A. Cahill (Great Lakes), fifth; Larry Brown (California Cub), sixth; H. W. Holliday (Great Lakes), seventh; S. Stanton (Cessna), eighth; J. R. Weddell (Weddell-Williams), ninth; and C. Coffrin (Great Lakes), tenth.

Only one serious accident marred the contest. Mr. Russell Hosler tried to take off at Cincinnati with his single-wheeled undercarriage suffering from a flat tyre and broke his fuselage and seriously injured his back. Of the other seven eliminations none was caused by engine trouble of any kind.

Although there was no rule against changing engines on the way, none were replaced, and replaced parts were confined to comparatively minor units. At the end of the race American Cirrus Engines Inc. offered to recondition all engines free of charge, but nobody took advantage of this offer, as they considered their engines in excellent condition.

The winner ran his engine at an average rate of 2,200 r.p.m. throughout the race and reported no engine difficulties of any nature.

This race was particularly interesting in that a large percentage of the competitors were flying machines which were specially built for the contest.

The American Cirrus company is to be congratulated on its enterprise in promoting a race which has resulted in the production of so many new types of aircraft fitted with its engines.

The race has caused widespread interest and has drawn considerable attention to the reliability of the Cirrus engine all over the United States.

THE GIRO AEREO.

The Aerial Circuit of Italy got away on Aug. 25 for the first stage from Rome to Rimini. Miss Winifred Spooner, the only English contestant, was ceremoniously welcomed by the Italian Minister for Air, General Balbo, and the women of Rome presented her with numerous bouquets. She is flying the old Moth (Gipsy II) G—AALK.

The practical tests of the machines were made beforehand and Herr Lusser, the youthful German veteran, came out top with 63 marks. Miss Spooner was only 38th with 45 marks for the technical tests, although she seemed likely at first to take a higher place.

The handicap for the race itself is based on the test score and the competitors left in the order as they classified.

Herr Lusser was therefore the first to leave Rome on Monday, followed by Miss Spooner's only woman rival, Signorina Tatiana Fumagalli in a Romeo 5 (Fiat). Herr Lusser arrived sixth at Rimini, the end of the first day's journey, and the first was Colonel Sacchi. Miss Spooner, after passing 30 of her opponents arrived sixth at Brindisi and flew second over Fermo. After that she lost her route in the clouds for a while and came in ninth to Rimini.

The withdrawal of Major de Bernardi with engine trouble has caused considerable disappointment among his many admirers in Italy.

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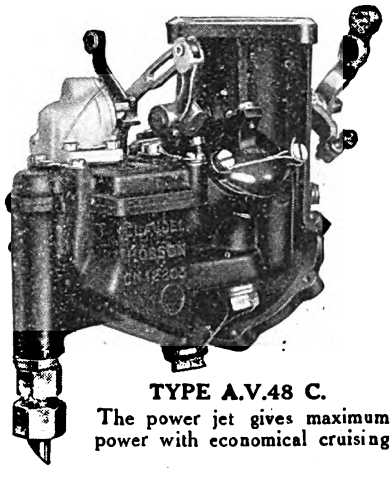
2nd	De Havilland Moth (Fastest Time)	Gipsy II	A. S. Butler
4th	De Havilland Puss Moth	Gipsy III	Mrs. A. S. Butler
5th	Avro-Avian	Armstrong Siddeley Genet Major	D. S. Green
6th	Blackburn Bluebird	Cirrus Hermes	T. Rose
7th	De Havilland Hawk Moth	Armstrong Siddeley Lynx	Flt.-Lt. E. H. Fielden
8th	Avro-Avian	Cirrus III	Flt.-Lt. T. B. Bruce
9th	De Havilland Puss Moth	Gipsy III	H. S. Broad
10th	De Havilland Moth	Gipsy II	Capt. Hope



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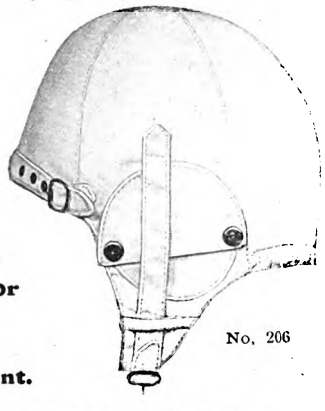

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equally on the excellence of the fitting of the engine and on the high quality of the Vacuum Mobiloil which was used. If the oil had been of other than a very high quality it would most certainly have lost viscosity and have been squirted out round the bearings and round the piston rings.

When the three engines were dismantled they were found to be in perfect condition. Careful checking of clearances etc. showed that no adjustments or replacements of any kind were needed. The same was found with Charles Lindbergh's engine after his flight from Los Angeles and New York to Paris, also with Mobiloil.

MARCONI AIRCRAFT APPARATUS ON TEST.

A working demonstration of the well-known Marconi Type A.D.6h aircraft wireless equipment was recently given at Croydon Aerodrome to certain distinguished foreign military representatives.

One set of this type was installed in the Marconi Company's Bristol Fighter, and a second set in a D.H.50, which was chartered from Imperial Airways Ltd. for the purpose. The ground station with which communication was maintained during the tests was erected at the Marconi Company's experimental section at the Aerodrome and consisted of a Marconi aircraft transmitter Type A.D.18a (which has a total input of approximately 350 watts, i.e., one-tenth of the power of the Croydon Aerodrome wireless transmitter) and a receiver of approximately the same sensitivity as that used at Croydon. The aerial employed had a height of only 30 feet.

The two aircraft left the aerodrome simultaneously, the Bristol Fighter flying along a direct line between Croydon and Leamington, and the D.H.50 along a direct line joining Croydon and Lincoln.

Two-way telephonic communication was maintained between the two aircraft, on their diverging courses, as far as possible, after which the Bristol Fighter returned to the aerodrome and the D.H.50 continued until the limits of ground-to-air and air-to-ground telephonic and telegraphic ranges were reached, test messages being passed at prearranged points.

The results obtained, which are given below, are interesting as showing the ranges which are easily obtainable in actual practice, and in spite of severe interference which was experienced on the wave-length allotted for these tests.

With the Type A.D.6h equipment:—

Inter-aircraft telephony range, 28 miles.

Air to ground telephony range, 107 miles.

Air to ground telegraphy range (interrupted continuous waves), 136 miles.

Air to ground telegraphy range (continuous waves), 200 miles.

Ground to air telephony range, 55 miles.

Ground to air telegraphy range (interrupted continuous waves), 107 miles.

Ground to air telegraphy range (continuous waves), 147 miles.

THE LEICESTER AIR PAGEANT.

The race for the Grosvenor Challenge Cup, presented by the late Lord Edward Grosvenor, will be flown at the Ratcliffe Aerodrome, Leicester, during the Air Pageant on Sept. 6 and 7. The race is open to any type of aeroplane the weight empty of which does not exceed 1,200 lbs.

The Air League Challenge Cup will also be competed for during the same Pageant. It will be awarded for a short-distance relay race between Light Aeroplane Clubs.

Entries close on Aug. 30. Particulars may be had from the Leicester Aero Club, 3, Granby Street, Leicester,

THE ANTWERP INTERNATIONAL AVIATION MEETING.

The International Aviation Meeting organised by the Antwerp Aviation Club will take place at Antwerp on Sept. 13-15. Entries close on Sept. 6. Applications should be sent to the Secretary, the Antwerp Aviation Club, 39, Vieille Bourse, Antwerp. Copies of the Regulations may be had from the Royal Aero Club, 3, Clifford Street, W.1.

THE BELGIAN LIGHT AEROPLANE COMPETITION.

The International Light Aeroplane Competition organised by the Aero Club of Belgium will take place at Brussels on Sept. 17 to 21. Entries close on Sept. 7. Applications should be sent to the Secretary, the Aero Club of Belgium, 19a, Avenue Louise, Brussels. Copies of the Regulations may be had also from the Royal Aero Club.

A SPIRITED TALE.

The romantic story of the Princess and the 19th mechanic in the King's garages is graphically told with copious illustrations in a work just published by Shell-Mex, Ltd. The widespread interest which will no doubt be felt in the automotive adventures of the gallant, the necromantic intrigues of his exalted innamorata, and the ingenuity, frustration and dismay of her royal sire will naturally cause a run on the volume which may be had (at present) free of charge from Shell-Mex, Shell Corner, Kingsway.

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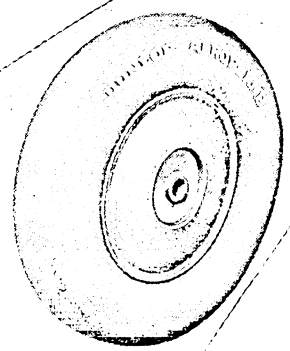

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MANY INVENTIONS.

Whether he be some Regent-Palace-dwelling latter-day aristocrat, with such stigmata of birth and breeding as an orientally-curving nose and a happy knack of conversing by gracefully waving the palms of the hands at ear-level when a lesser mortal might be stricken dumb by a double mouthful of (say) salmon mayonnaise,—or whether he be an oppressed Anglo-Saxon peasant, existing on a mere pittance (or dole) in some fungoid Council-house infested with the death-watch beetle, the dry rot, the boll-weevil and such small deer, your average member of the British public knows nothing of aviation and aircraft save a mass of myth, folk-lore and fantasy taught him by loud-mouthed newspapers of the baser sort.

He is apt to believe, is John Citizen, that an aeroplane is a mysterious engine of destruction, like electricity and Income-tax, of which Science knows little, and therefore an aircraft may blow up and disintegrate into a shower of nuts, bolts and cogwheels at any moment or may fly to pieces in mid-air owing to an inherent inability to stick together. With many, too, it is an article of faith that but for a pilot with the nerve and sense of balance of a tight-rope walker in the midst of a firework display, coupled with the will-power of a Pelman and the tenacity of purpose of a thirsty man with his beak newly dipped into a pint pot, no aeroplane would ever complete a journey, and should a brisk zephyr get under the tail of an aeroplane at the same time as a pilot sneezes, thinks John Citizen, all equilibrium would infallibly be lost and the machine would nose-dive to mother earth forthwith.

These vapours are directly traceable to the Daily Newspapers, which for a decade or more have lost no opportunity of booming every horror they could imagine or invent about Aviation, with a view to hysterical headlines and sensational stories, and because reporters with the mentality if not the personal appearance of common or graveyard ghouls have pandered to sub-editors with charnel-house tastes in copy, an immense amount of harm has been done to Commercial Aviation.

There is doubt, too, whether casually scattered largesse to Aviation, when there is 100% of profit in publicity to be got from the strewing of what might otherwise be given away as cross-word-puzzle prize-money, is either virtuous in itself or any compensation worth mentioning for the harm done by ghoulish gloating over the misfortunes of Aviation or sensational and inaccurate reporting of most matters pertaining to flying.

The above, by the way, is all because certain charming people who really know all about flying and who write delightfully and accurately thereon, have taken exception to some small counterblasts in these columns against *soi-disant* aviation journalists. They should not, however, seize a cap which does not and never was meant to fit them and clap it gloomily upon their intellectual brows. At the same time they must know that the sensational and harmful nonsense about aviation which so often appears in the Press cannot and will not be hailed with enthusiastic joy by Aviation folk, and, moreover, that this is not merely a hornet in the particular hat appertaining to Spry, but that all Commercial Aviation people feel the same about the newspapers.

From the K.L.M. annual report for 1929 the following figures are taken, and may be of interest. Out of a total of 4,162 flights 4,005 were flown to schedule. Bad weather caused the cancellation of 82 and 12 were interrupted by technical troubles. The percentage was therefore 94.4.

In these days of wonderful machinery it was refreshing to see a return to primitive agricultural methods recently, when an old gentleman was observed solemnly watering a tract of tarmac edge, with an ordinary garden watering-can containing boiling tar. It is rumoured he has been taken on for the duration of his natural life, and it seems likely that he will need all that time, and then some, because to his faint surprise and great annoyance his tar congeals in the holes it is supposed to come out of, and these passages frequently have to be cleared with bits of stick and crows' feathers. Anyhow, we wish him luck. It is doubtless a serene and healthful occupation, and cannot do much harm.

On the Air Lines there is little news, but Mr. Muir and Mr. McClennan (the Surrey Flying Services photographer) have just returned from a successful three months of aerial photographic work in the North of England.

Mr. Horsey, of Imperial Airways, recently bought a very small puppy from a somewhat famous local canine kennels, and then went and bought a very big police-whistle. The puppy finds it all vastly entertaining.

Portentous happenings in the matter of hattings have been,—(a) two parsons in berets, who arrived by air closely followed by (b) two American gentlemen wearing glengarries. There were no specially disastrous consequences.—

SPRY.

IMPORTANT DATES.

Aug. 30.—Liverpool-Manchester Air Race for Cundiff Trophy (Displays at Hooton and Barton).

Aug. 30.—Bedfordshire Aero Club Display, Goldington.

Aug. 30.—Air Fete and At Home at Cramlington (Newcastle).

Sept. 1—6.—International Congress on Air Navigation at The Hague.

Sept. 6.—Official opening of Mr. Lindsay Everard's private aerodrome at Ratcliffe, Leicester, and the race for the S.B.A.C. Challenge Cup, for Light Aeroplane Clubs.

Sept. 6.—Bristol Air Garden Party to the British Association.

Sept. 27.—Air Meeting at Hanworth.

Nov. 28—Dec. 14.—International Aero Exhibition in Paris.

RECEIVERSHIP (RELEASE).

E. R. Calthrop's Aerial Patents Ltd.—W. C. Northcott, of 6, Great Winchester Street, E.C.2, ceased to act as Receiver/Manager on July 19.1930.

MORTGAGES AND CHARGES.

De Havilland Aircraft Company Ltd.—Mortgage on land known as Stag Lane Aerodrome, Edgware, dated July 30, 1930, to secure all moneys due or to become due from the company to Barclays Bank Ltd.

NEW COMPANY.

Personal Flying Service Ltd.—Private company. Registered Aug. 22. Capital £100 in £1 shares. Objects: to carry on business as letters out on hire of flying machines, to transport passengers and goods, etc. The directors are:—W. D. Gillies, 28, Craven Terrace, W.2, private secretary. W. N. Darnborough, Chelsea Park Gardens, W.1, company director. I. N. C. Clarke, 11, Hart Street, Bloomsbury, pilot. Solicitors: Francis White and Needham, 230, Great Portland Street, W. Registered office: 92, Piccadilly, W.1.

PERSONAL NOTICES.

Births.

GREY.—On Aug. 22, at 3, Wilbraham Place, S.W.1, to Margaret Sumner Grey and Charles Grey Grey (Editor of The Aeroplane)—a son.

KING.—At Beehive Bungalow, Lee-on-Solent, on Aug. 13, to Violet, wife of Flt. Lt. H. E. King, R.A.F., *H.M.S. Glorious*—a daughter.

MALET.—On Aug. 21, at The White House, Threekingham, Billingborough, to Eileen, wife of Flt. Lt. B. A. Malet, D.F.C., R.A.F.—a daughter.

FODEN.—On Aug. 18, at Benslow Nursing Home, Hitchin, to Rosalind, wife of Flt. Lt. J. C. Foden, A.F.C., R.A.F.—a daughter.

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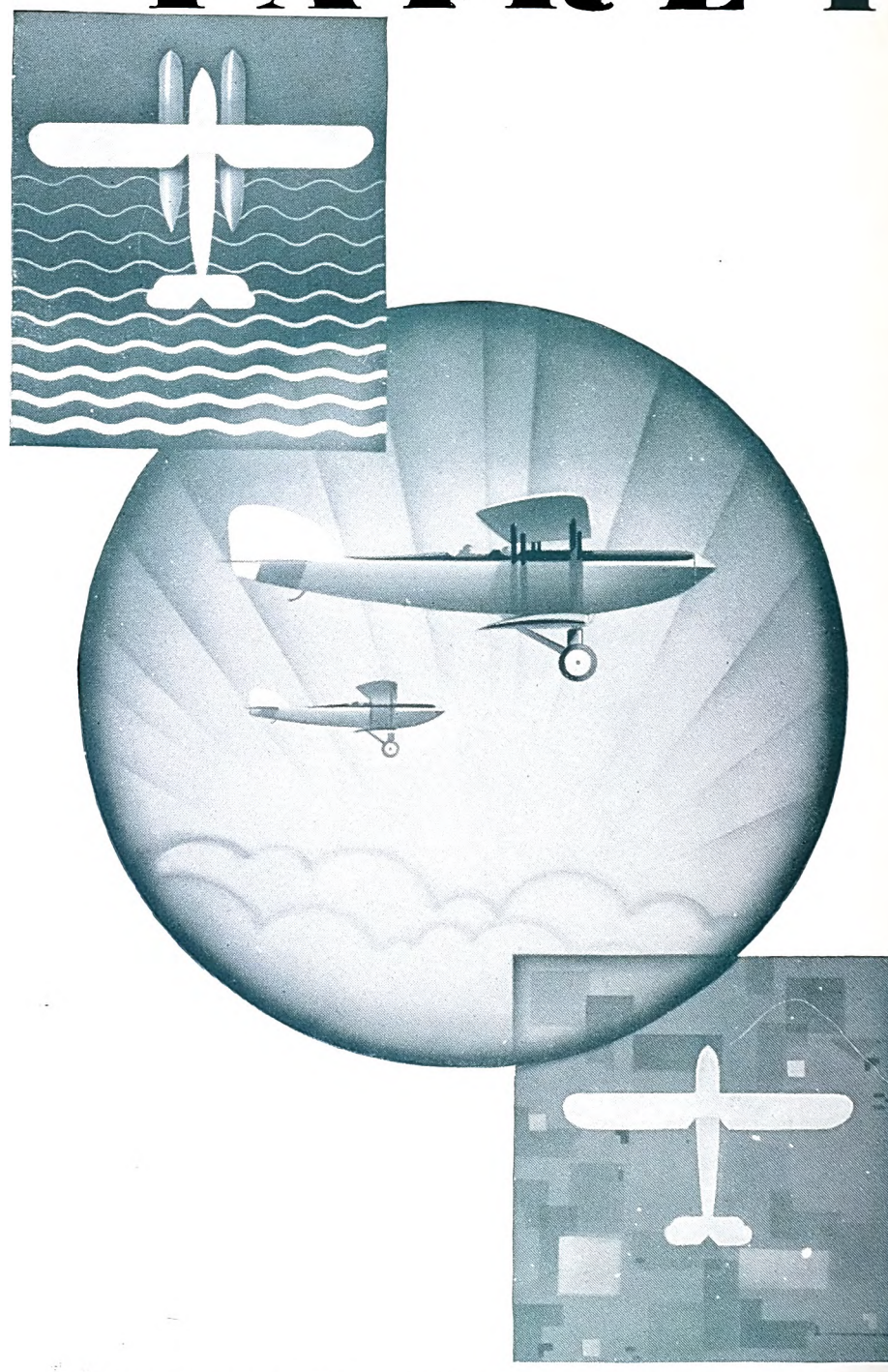

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ON A TRIP TO HOOTON.

On Saturday, Aug. 30, when all parts of England south of Crewe were, until near midday, under a blanket of fog which effectively stopped all flying, that particular part of England in which flying is quite impossible during many months of the year, as our Imperial Airways Service is already beginning to discover, happened to have reasonably good flying weather. That is to say, the clouds were as high as a thousand feet and visibility over a goodly part of the country was as much as two or three miles. I gather that they call this "high visibility" in Lancashire and Yorkshire, and those parts of Cheshire and Derbyshire abutting thereon.

Anyhow, last Saturday afternoon was the allotted date for the annual fighting-out of the aerial section of the perennial feud between Liverpool and Manchester,—for which the reward is a handsome trophy presented by Sir William Cundiff, lately Lord Mayor of Manchester.

The feud between the two cities goes even deeper than the old jest about a "Manchester man" and a "Liverpool gentleman." Actually it is almost racial, seeing that Lancashire is largely Celtic, and Yorkshire is almost pure Dane and Saxon.

Of course, nothing of this prevents the men and women of Liverpool from going to parties in Manchester, and *vice versa*. In fact, the Lancashire Aero Club and the Liverpool Aero Club are the best of friends. But one catches glimpses of the traditional feud at times. As for example, soon after our party arrived at the Hooton Aerodrome whence the inter-city race was to start, we met a well-known member of the Lancashire club who was labelled as a Judge. Somebody remarked on the fact that he was a Judge, whereupon a bystander said, as an adequate explanation, "Of course they had to have a Manchester man for Judge—the handicapping was done by a Liverpool man!" Which, after all, only seems fair play.

A First Impression.

To my shame be it said I had never been to the Hooton Aerodrome before, and I regret it. Certainly it is one of the most adequate aerodromes in the country, and I know of no other which is quite so prettily situated. The far edge of the aerodrome is the bank of the Mersey,—and at that distance even the Mersey looks pretty. Also at that distance there is no need to bother whether, as Shakespeare said, "The quality of Mersey is not strained."

Even the mudbanks of Speke, on the far side of the Estuary, which the City of Liverpool apparently desires to turn into an aerodrome at vast expense, look quite alluring. There is an old jest to the effect that one of the advantages of being at Harrow School is that on a fine day one can see Eton from it. Somewhat similarly one might say that one of the advantages of Speke as an aerodrome is that it looks quite pretty from Hooton.

Apart from that, Hooton is a good spot. The Liverpool and District Aero Club are a thoroughly cheery crowd, and there is about the place something of that indefinable atmosphere that one gets at Heston, a feeling that although the place is supposed to be a commercial undertaking there is very little sordid commercialism about it. Everybody seems to go about their business much more as a pleasure or a sport than purely as a business.

There is in fact good reason why Hooton should have the proper sporting spirit, because a goodly portion of the aerodrome is in fact a polo ground on which the Wirral Polo Club play on certain days. And something of that fine spirit of sportsmanship which is essential in polo seems to prevail over the whole place.

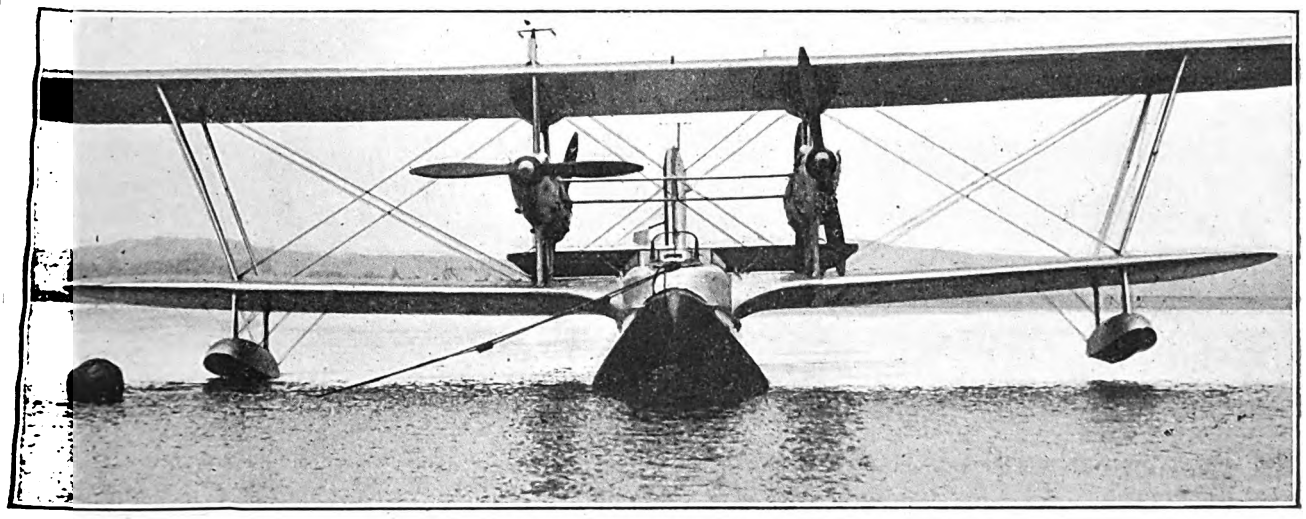
The Comper Company.

Another interest at Hooton is the fact that Comper aircraft are being made there. And before very long the Comper Works will probably be very much of an attraction for visitors. On Saturday the three different types of Comper Swifts were all on view and all flying for the first time.

The original Comper Swift, with the two-cylinder A.B.C. engine, is already familiar to people who have been to Flying Meetings this year. Some few, more privileged, have seen the Comper Swift with the Pobjoy engine. At the moment there happens to be only one Pobjoy engine operating in the World, and naturally the machine in which it is fitted is not being flown all over the country. But, having seen it fly at Hooton, I do not hesitate to say that it is a good thing for some of the prize-winners in big competitions that the Pobjoy Swift has not been available.

It must certainly be by a long way the fastest single-seater of its power in this country, although it is not spe-

"WHOSE FOOT SPURNS BACK THE OCEAN'S ROARING TIDES."
(Shakespeare—*King John.*)



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cially faked for racing like some of the really high-speed American machines. Actually, it cruises quite comfortably at somewhere between 110 and 120 m.p.h. and its top speed must be somewhere about 130 m.p.h.—which is quite good going for a mere 70 h.p.

The third member of the Comper family is a Swift with the nine cylinder 40 h.p. Salmson engine. This is likely to be a very popular model. The little Salmson engine has proved itself to be one of the most reliable in the World. And as soon as the British Salmson Works start turning out engines it is likely to be one of the most popular in this country.

With the Salmson engine the Comper Swift is as pretty a little aeroplane as anybody could wish to see. And as deliveries of Pobjoys by the newly-formed Pobjoy Airmotors Ltd., of which Captain Ian Maxwell is the Managing Director, cannot possibly begin for several months, there is likely to be quite a run on the Salmson-engined machines. In any case, the two models can very well exist side by side, for the Pobjoy will necessarily be the more expensive engine as it is so much more powerful than the little Salmson and so light.

There certainly is a market for a single-seater aeroplane as a hack or a sporting machine, and the Comper Swift is just the type to satisfy that market thoroughly.

The Genius Loci.

No account of Hooton could possibly be adequate without reference to the presiding genius of the place, Mr. G. H. Dawson. After having done quite well in business in Ireland, in the days when it was a country fit for quiet hard-working people to live in, when the rebellion of 1920 and thereabouts defeated a feeble British Government, Mr. Dawson wisely left the country and settled at Hooton.

He bought up the area which includes the existing aerodrome, with all the immense buildings on it which were put up during the War of 1914 to be used as an assembly park for American-built aeroplanes which were to be shipped to Liverpool, in pieces, and put together there. The "putting together" stage never got very far. But the place was built and equipped in the lavish style which prevailed during the war, and the result is, that Mr. Dawson is the proud possessor of a place which combines an ideal aerodrome with an ideal aircraft factory.

Let us hope that within a very few years the Comper Aircraft Company Ltd., and Pobjoy Airmotors Limited, which are now housed in a comparatively small way in these vast buildings, may find even them too small.

Mr. Dawson actually bought the place ten years or more ago because of his faith in the future of Aviation. He has been asked to sell or lease the buildings to be used as factories for various other industries. And he has consistently refused on the grounds that they are going to be used for the production of aircraft or nothing. That is the right and proper spirit in which to tackle an aviation undertaking, and all who know Mr. Dawson hope most sincerely that he will see his money back with what would be usurious interest if he did not so thoroughly deserve a big reward for his pluck and pertinacity.

An example of these qualities is found in the Comper Company itself. When the firm was founded everything looked like plain sailing. Squadron Leader Nicholas Comper, who formed the firm, is certainly as good a designer as any in his profession, and there seemed no reason why the firm should not go straight ahead. But, as usual, efficient people had to depend on others for all sorts of things which were outside of their own control.

For example when the firm started nothing looked simpler than using electric power for all the necessary machinery by taking the power off the local supply. When Mr. Dawson and Sq. Ldr. Comper went into the question they found that so many obstacles were put in their way, and the cost of getting the current from the local supply was so prohibitive, that they decided to start, first of all, by manufacturing their own power. That meant getting gas-engines, dynamos, motors and so forth and installing them before a stroke of work could be done in the way of building an aeroplane.

Then the Pobjoy engine, on which a good deal depended on the start, became involved in various and sundry arguments, with the result that instead of the output of Pobjoys to-day being, as it should be, somewhere in the region of fifty per week, there is, as already mentioned, only one Pobjoy engine in the World actually flying.

Just what happened to delay the output of the two-cylinder A.B.C. Scorpion one does not quite understand. Anyhow, the engines which were wanted for Comper Swifts were not available. And so, what with one thing and another, instead of there being a regular output of Comper machines as from last January, based on the fact that they were already being discussed with much interest at the time of the Aero Show in July last year, the output of Comper Swifts is only just beginning to-day.

Exercise and Experience.

Having been in business myself for something over thirty-five years, this kind of thing is neither surprising nor disheartening. Anybody who knows the ordinary alleged business-man all the way up from the Building Trade to the Engineering Trade is never surprised at any kind of happening which delays the starting up of a factory for twelve months.

Disappointments of this kind are merely a kind of mental and moral Sandow-exerciser which try out the character of the people who are building the business. And all this has undoubtedly been a most valuable, if heart-breaking, experience for Sq. Ldr. Comper and his brother Adrian, yet they keep smiling.

For a man of Mr. Dawson's immense experience such delays are all part of the day's work, and, judging by the way he takes it, part of the day's amusement. Though there has been a delay of a full year in getting the Comper Co. going, there is less prospect of it coming to grief now than there would have been if everything had gone smoothly from the start. The younger members of the firm have bought a lot of experience without, so far, losing much money over it, and without really losing much time.

During the next few months work on the Pobjoy engines will go ahead, under the gentle but firm hand of Capt. Maxwell, and Comper Swifts will be built to take the Salmson engine. Consequently, by the opening of the flying season next year the two firms should be well able to meet the demand for their products.

The Swift Types.

Incidentally, there is another point which will interest prospective buyers. The Swift is so built that all three engines go onto exactly the same wings and fuselage. The fuselage is actually built in three pieces,—a nose-piece which carries the engine and tanks; a middle piece which carries the wings and the pilot's cockpit; and an after-piece which carries the tail unit.

The three nose-pieces are so built that the engine is at various distances from the back-plate according to its weight. And by unbolting a nose-piece with one engine in it either of the other two can be put in its place without having to alter anything else in the machine.

A PUBLIC APPEARANCE.—Sq. Ldr. Nicholas Comper flying the Pobjoy-engined Swift at Hooton.
—("*Aeroplane*" *photograph.*)

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Extract from official narrative of a survey cruise by two

Supermarine Napier

Flying Boats

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"IT is noteworthy to record that in the case of the S.1150 the completion of this cruise brought her total flying time since purchase to 596 hours, and she had been afloat for one year and 75 days. During that time also she had experienced no trouble of any kind. With the exception of one or two minor technical troubles, such as the changing of one plug, the aircraft and engines behaved splendidly throughout the whole period of the cruise." *The Royal Air Force Quarterly. July, 1930.*

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Cirrus Aero Engines, Ltd.,
Croydon Aerodrome,
SURREY.

Croydon Aerodrome,
August 9th, 1930.

Dear Sirs,

It may interest you to hear that on my recent flight to Baghdad and back the Hermes engine fitted to my Desoutter functioned perfectly throughout the flight.

The flying time on this flight was 62 hours and the distance covered approximately 5,500 miles and it must be remembered under most trying conditions for an air cooled engine as from Constantinople to Baghdad the heat was intense and the machine was carrying its maximum permissible load.

Apart from sometimes very hurried daily inspection, no work was carried out on the engine until arriving at Baghdad where it received a full routine inspection and where it was found that the motor was in perfect condition. On the return flight again no work was carried out, and the engine was running as well when I returned to Croydon as when I left.

A week after arriving back in England the machine was flown in the King's Cup race. and the engine was of course run at full throttle for the entire race and was giving full revs. at the end of the course. This engine is still in the machine and is still running perfectly.

I think that these two flights prove that the Hermes is an engine that does not mind hard work under most trying conditions.

Yours faithfully,

(Sgd.) C. BERNARD WILSON.

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flat, with one wing down, then he throws it over onto the other wing and sits on the air in that direction, and after doing it three or four times the machine is a foot or so off the ground, apparently without any way whatever.

In a bigger and heavier machine this method of landing would be called swish-tailing. But the Swift is so small and so light that quite distinctly instead of the machine wagging its tail the tail wags the whole machine. At Hooton Mr. Snaith's flying was unusually effective, because the grass was shorter than usual and he did not disappear below it while still in an inverted position.

Liverpool versus Manchester.

After that there was some wing-walking, which one does not find amusing. Then at 15.00 hours came the great event of the day, the Inter-City Air Race. For a variety of reasons five of those whose names appeared on the programme did not compete. Some were disqualified because they were flying trade machines, and others just did not arrive.

The essential point about the Inter-City Air Race, which was inaugurated in 1929, is that all machines must either be the private property of members of the competing Clubs or they must be machines owned by the Clubs and used regularly for instruction. The machines are handicapped on their known performance, and the winner, therefore, depends on skilful piloting and painstaking tuning of engine and machine.

The result of the race was all that the best sportsman could wish. The winner was Flt. Lt. J. B. Allen, the Instructor of the Liverpool Club. This was practically his last official flight, as he is leaving the Club almost at once to become personal pilot to Her Grace the Duchess of Bedford. Therefore everybody was delighted that his last flight as a club pilot should be the winning of such an important race.

A Good Show.

Flt. Lt. Allen had a highly creditable career in the R.A.F. during the War 1914-18, and afterwards held a short service commission. He only just failed to have his commission made permanent, after being recommended all the way up to the Air Council on at least three separate occasions from three different Areas. That itself is the best proof of the esteem in which he was held by his immediate commanding officer and by Wing and Area commands as well.

After leaving the R.A.F. he had a very good job with the Brunner Mond people, and resigned that to become Instructor to the Liverpool Club, simply because of his devotion to flying. At the Liverpool Club he has been an unqualified success, and he leaves there dozens of friends who will wish him still further success in the employ of the Duchess of Bedford.

As Instructor to the Liverpool Club Flt. Lt. Allen is succeeded by Mr. Geoffrey Clapham, who only came back a few months ago after being instructor to the Bolivian Air Force. In that employment his aerodrome was at a height of 14,000 ft., and he had to teach Bolivian aviators of remotely Spanish origin to do aerobatics at a height of 15,000 ft. or 16,000 ft. After such experience as an instructor there seems little reason to doubt his success at Mersey-level.

This was Mr. Clapham's first public appearance since joining the Liverpool Club, and he certainly showed that as a pilot he has nothing to fear from any competition. The way he handled the Club's Moths, both when flying aerobatically and crazy-flying, must have given considerable confidence to those members of the Club who had not seen him fly before. His old friends of the Yorkshire Club, and in the R.A.F., will wish him every success in his new job.

The Race.

However, to return to the race.—The course was from Hooton Park, almost due east to Woodford, which is the aerodrome of the Lancashire Club, a matter of 32 miles—thence to Barton Moss, the Manchester Municipal Aerodrome, another 14 miles, where the competitors had to land and stay for an hour,—presumably as a penance. After that they had to fly over Wigan to Southport (28 miles) down to a turning-point at Roby (another 18) and then finish at Hooton Park (about nine miles).

Along the first stretch, where the north wind was bringing over all the smoke and dirt of Liverpool and Warrington and St. Helens and the towns along that line, the air was fairly thick, but the competitors made quite good times.

The handicapping was excellent, for Flt. Lt. Allen was only crossing the finishing line when Mr. Mills of the Lancashire Club, and Mr. Naylor of the Liverpool Club came into the aerodrome within a second or so of one another.

While they were still in the act of landing Mr. R. F. Hall, of the Lancashire Club, and Mr. Crawshaw, of the Liverpool Club, also came in, practically side by side. Mr. Thornton, of the Liverpool Club, was only a little way behind, and then there was a considerable wait before Mr. Cohen, of the Lancashire Club, arrived. Some of his friends were a little anxious about him, because he is not a very experienced pilot, and they were afraid he might have lost his way in some of the thick weather coming in from Southport, round the east and south of Liverpool. As a matter of fact, he seems to have kept a very good course and to have flown a very creditable race, although he was last.

Comic Relief.

After the race there was a balloon-bursting competition, which was quite amusing. Mr. Allen had the first shot and burst all the balloons except three, which he chased round the sky for several minutes. Then Mr. Snaith, in the two-cylinder Comper Swift, had a go, and burst the whole lot of balloons at his first shot.

Here, possibly, is rather a nice problem for aero-dynamic scientists. Does a biggish biplane throw out such a bow-wave that it disperses a bunch of balloons, whereas a small monoplane like the Swift goes straight into them before they have time to dodge?

By way of comic relief from the flying there was one event which one commends strongly for those who must have some kind of ground display. This was called "motor-cycle surf-boarding." A kind of tray is towed behind a motor bicycle, and some person who apparently wishes to eliminate himself sits or kneels on it, and is towed round a course on the aerodrome. Three such pairs were started in each heat, and there is always the cheering possibility that the person who is being towed by the leading motor bicycle may be thrown out centrifugally at the bend and be run over by any motor bicycle following immediately behind. It seems to be even more gladiatorial than dirt-track racing if performed seriously.

The compiler of the Liverpool programme deserves high commendation for the way in which he, or possibly she, managed to burlesque the fatuousness of the ordinary dirt-

THE WINNER.—Flt. Lt. J. B. Allen in the Liverpool Club's Gipsy-Moth taxying in at Hooton, escorted by an enthusiastic club member.—(*"Aeroplane" photograph.*)

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The ATLAS TWO-SEATER

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SIR W. G.

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track programme by inventing names even more idiotic than those adopted in real life by professional dirt-track racers, and by thinking of still more foolish titles for the trophies on which their fame is based. For example:—

"Highgear" Vale (Holder of the "Cowhide Glove," Spavin City Speedway), "Breezy" Wynne (Winner outright "Aertex Silver Vest," Windy City Track), "Wipe" Jones (Winner of Three "Excelda" Championships), "Sprocket" Clavin (Second in the "Eastham Spangled Cami-Bocker" 3-Lap Event, 1928), "Rusty" Williams (Holder of Record for "Amami" Speedway, Friday nights), "Hank" Coxwil (Winner of the "Encyclical Camisole," Lambeth Track, 1930), "Tappet" Knox (Twice Winner of the "Steel Bracelet," Borstal Track), and so on.

Lastly, there was the usual set-piece, or "aerial strafe," as the programme called it. This was thoroughly joyous, as was the rest of the programme. It is best described by the programme itself:—

Whilst flying over Boravia, the noted Airwoman, Mrs. Daphne Hake, is forced to land to change her jewels and re-stick her lips. Bonanza Snoggs the Terror of the Tropics and his Robber Band capture the daring Aviatrix, and convey her, a prisoner, to their Stronghold nearby. Her husband and friend arrive by air, and under the mistaken impression that Daphne has developed Sheik Fever, throw discretion and High Explosives to the winds. After utterly destroying everything inflammable, they register the joy of Victory, and continue their flight in a highly elated state of mind.

Joy-Riding.

In between the events there was a large amount of joy-riding by an elderly Handley-Page, hired from Imperial Airways Ltd., by a joy-riding firm, who seem to be doing quite well out of it. Those who are responsible for the machine will probably do better in future to pay a little more attention to rules and regulations. The pilot was particularly asked not to take off while the competitors for the Inter-City Race were waiting on the line, but he insisted on doing so. Also, he was particularly asked not to do left-hand circuits, and he did that too.

Quite apart from questions of common courtesy to his hosts, who allow him to make money on their aerodrome, a pilot who does that sort of thing is, in fact, liable to prosecution by the Air Ministry for disobeying orders given by authority which has been definitely delegated to those in charge of the Meeting.

His numerous former friends at the Norwich Club and at Croydon will be interested to hear that Mr. G. F. Lines, formerly instructor at the Norwich Club, and more recently either a partner or an employee with Lieut.-Col. Bishop, a world-famous Canadian holder of the Victoria Cross, in a firm called British Air Lines Ltd., was one of the joy-ride pilots at Hooton. He is, I gather, in the employ of the Lancashire School of Aviation at Blackpool. And I feel sure that he will be pleased to hear from his friends in the South and East. Incidentally, he had some difficulty in producing his "B" licence to fly for hire or reward when asked for it.

Altogether the Meeting was quite a success. Hooton is not yet directly linked to Liverpool by the new road-tunnel, and there were all sorts of other attractions on in the Birkenhead and Chester district, so the Club did very well to accumulate a crowd of something in the direction of 10,000 people on a distinctly dull and threatening-looking afternoon. I feel that when the Liverpool Club is a little better known it will have very considerable success. And I particularly recommend those pilots from the South and East and North who have not been to Hooton to pay the place a visit as soon as they can find a spare week-end.

The Attractions of Hooton.

Some of the finest golf in the world is to be had on the Wirral Peninsula. The ancient city of Chester, which is only a few miles from Hooton, is one of the most interesting places in England, and incidentally has one of the finest hotels in the country. The Welsh mountains, which are quite worth seeing, especially from the air where one does not come into contact with the people, are within a few minutes' flying of Hooton, and, for those who want the usual entertainments of a great city, Liverpool itself provides all that anybody can want.

The people at Hooton will be delighted to attend to the wants of aerial visitors. And, as has been said already, they are a particularly hospitable and cheery crowd. Incidentally, any tourist who wants any job done to his machine by the engineering staff of the Club will have the satisfaction of knowing that the job will be supervised by Mr. Howard Pixton, the Club's ground engineer, who was the first British winner of the Schneider trophy. He does not advertise his fame, he is much more proud of the fact that he can turn out a machine in a state to win races as Flt. Lt. Allen won the Inter-City race on Saturday. But all the same, there is a certain satisfaction in meeting one of the pioneers, and one of the earliest of heroes in British Aviation, doing a job of work cheerfully and thoroughly.

Lastly, I should like to thank publicly the Liverpool Aero Club and the constituent parts of the Comper Aircraft Co. Ltd. and the Pobjoy Airmotors Ltd. for a very pleasant and educative afternoon.—C. G. G.

At Barton.

One is tempted to start this account with a quotation from Kipling:—

"When the curtain of the haze
Shuts upon our helpless ways"—

and to follow this with some cutting remarks on the general silliness of people and things.

There were two events scheduled for Aug. 30 at Manchester's Municipal Airport. The Official Inspection by Lord Thomson and Sir Sefton Brancker and the Inter-City Air Race. Lord Thomson was to travel by air and was due to arrive at 11.30 a.m. From dawn chefs toiled to prepare a luncheon worthy of the occasion. Special electric cookers had been temporarily installed. Great numbers of Officials, A.A. Motor Scouts, Ambulance Men, Police and Lorries arrived. Habituants appeared in unusually smart suitings.

Councillors, Aldermen, Permanent Town Hall Officials, Prominent Business men thronged the "Special Enclosure." Manchester was waiting.

THE PRESENTATION.—Sir William Cundiff (lately Lord Mayor of Manchester) presenting his trophy to Flt. Lt. J. Bernard Allen. Col. Jerrett, Chairman of the Liverpool and District Aero Club, is on the left.

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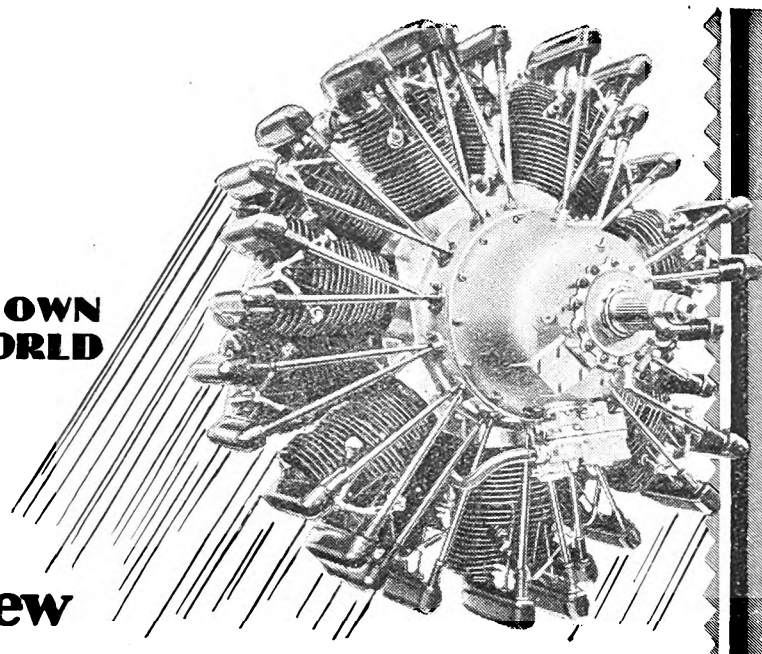

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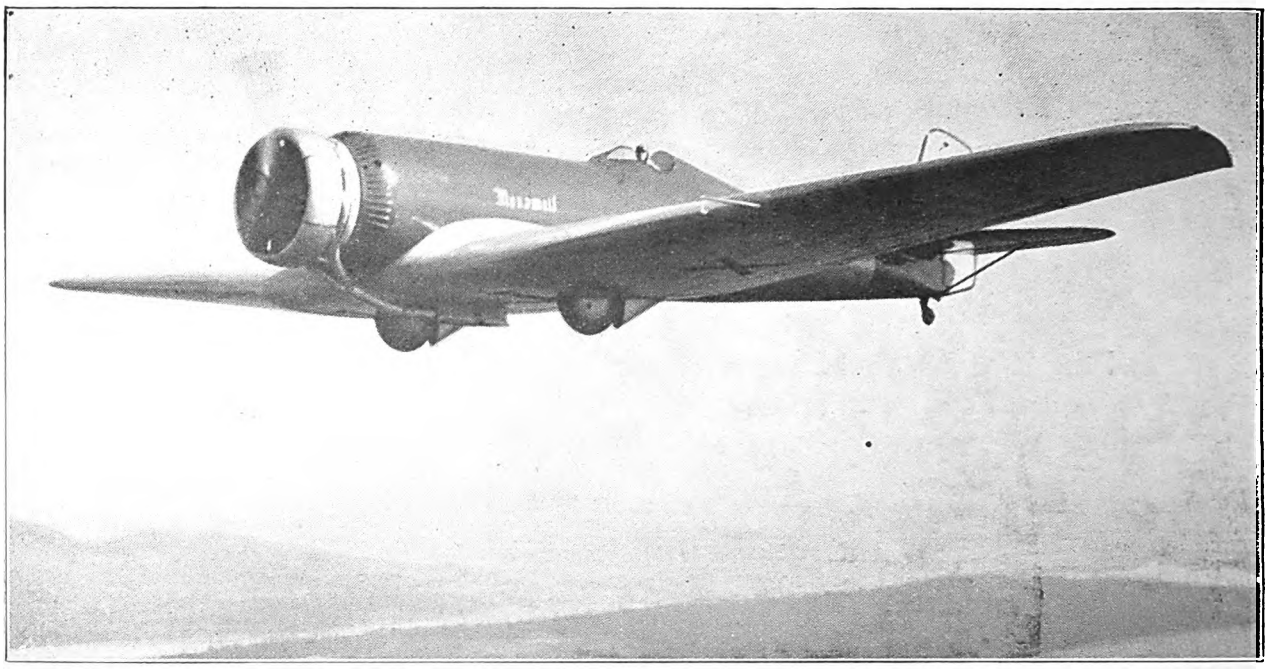

SPEEDING-UP THE MAILS.—The Monomail, in which the undercarriage is retracted to reduce head-resistance.

The weather at Barton was fair, with visibility of 3½ miles, and a light 15 m.p.h. wind. Capt. Eckersley departed for Woodford, and to everyone's surprise returned ten minutes later with the report that once clear of Barton there was thick mist, and he had been forced to turn back. He was followed a few moments later by the Imperial Airways liner, which had turned back over the Potteries, finding fog conditions impossible.

No word came from Lord Thomson, and the waiting Aldermen, now supported by the Lord Mayor and Lady Mayoress, began to ask questions. When much of one's life is spent in telling these people how reliable is air travel, it is difficult to explain to them just why air liners turn back and the Secretary of State for Air does not arrive on time.

The suspense of waiting was only relieved by a remarkable "stunt" show given by Alderman Davy on the new Ford Tractor. This machine, delivered that morning, was the centre of attraction and proved popular for joy-rides. Alderman Davy's effort and his final "charge" for the Mayoral party will be long remembered.

Finally at 13.00 hrs. a telegram came saying that Lord Thomson had started, turned back, landed at Croydon, and the visit was postponed. It was at this moment that a Liverpool aeroplane passed over Barton, flying round the course to see all marks were in position. The Mayoral party then trooped in to deal with the lunch, and the prepared speeches were hurriedly adjusted to suit the circumstances.

In the middle of lunch a Desoutter landed. The pilot, Mr. Russell, had flown from London, and asserted he had come to take Sir Sefton Brancker back to town. It was explained that the D.C.A. was presumably still in London. Pressed for his opinion on the weather, Mr. Russell admitted it was "a bit thick in places." This may fairly be called a stout show which really deserves notice. But why Sir Sefton should send an air taxi all the way from London when he intended to be at an air taxi base at Manchester seems hard to understand.

By three o'clock a large crowd had collected in the Public Enclosures and were kept entertained by odd stunt shows.

Then the competitors began to arrive. Mills (Manchester), first, received a great ovation, as his Moth had been rebuilt by Northern Air Lines and only left the Barton workshops two days previously. Four machines came next, almost neck-and-neck—Thornton, Crawshaw, Allen, Naylor (all Liverpool entrants), and provided almost the only thrill of the afternoon.

There was then a long wait, with the machines lined-up on the starting-line,—the pilots comparing times, and not to be found when wanted. However, all eventually left to time, and in due course the results came through by telephone from Hooton. The crowd, the Lord Mayor, Officials and Aldermen silently dispersed. Barton was itself again.—

J. L.

This came from Manchester also:—

Some surprise was experienced by Mr. A. C. Mills and Mr. R. S. Hall, of the Lancashire Club, when, before taking off, they were told that their handicaps had been increased, Mr. Mills's to the extent of 45 seconds, and Mr. R. S. Hall two minutes and ten seconds. This was unfortunate for the Lancashire Club, because under the old handicap they would have had the first and third places instead of second and fourth, which is the official return.

There was certain free comment amongst the pilots and those who watched the turning-points from the ground about the heights at which certain machines passed the points, but it is probable that, to preserve the good feeling that exists between the two clubs no protest will be lodged.

THE BOEING MONOMAIL.

The Boeing Airplane Co., of Seattle, Wash., has produced a new all-metal, low-wing monoplane for fast air mail transportation.

This type, which is known as the Monomail, has a monocoque fuselage on the nose of which is a 375 h.p. Pratt and Whitney Hornet engine with a Townend-type cowling ring of Boeing design. The cantilever wings are faired into the side of the fuselage.

A retractable undercarriage is fitted, but when the wheels are folded back into the wings enough of the wheels protrudes to allow for emergency landings.

The pilot is in an open cockpit over the trailing edge of the wing and there are three mail compartments, capable to holding over a ton of mail.

A second "Monomail" is being completed which will have accommodation for six passengers and less mail.

The Monomail is being used experimentally on the Boeing transcontinental mail route for full service tests.

ANOTHER ATLANTIC FLIGHT?

At 10.55 hours on Sept. 1 MM. Costes and Bellonte left Le Bourget in the Breguet biplane *Question Mark* (750 h.p. Hispano-Suiza engine) to fly to New York.

At 14.45 hours they passed over Rosslare, Co. Wexford, and at 15.49 hours they were over Kilrush, Co. Clare.

At 19.00 hours the *Question Mark* was sighted by the French liner *Rochambeau* about 780 miles from the south-west coast of Ireland.

The machine in which MM. Costes and Bellonte are flying is the same one that they used to beat the World's records for distance in a straight line (Paris to Tsitsihar in Manchuria), distance over a closed circuit, and duration, except that a 750 h.p. Hispano-Suiza engine has been substituted for the 550-600 h.p. engine of the same make used in the other flights.

The *Question Mark* carried enough petrol for 50 hours and it got off from Le Bourget after a run of 1,000 yards in 40 seconds.

On Sept. 2 before noon the *Question Mark* passed the island of St. Pierre, south of Newfoundland. M. Costes reported by radio that all was well, and that he was making for New York by way of Canso, Nova Scotia.

Again we have a long and dangerous flight which proves nothing.

A VOICE FROM THE PAST.

A valuable historic relic has recently come to light in Germany. This is a phonograph record of a speech by Count Zeppelin. The record, which is a very early waxen type, reproduces the voice quite clearly. It was made in 1908, when the contemporary Zeppelin had just been completely destroyed at Echterdingen, and the Count was appealing for help from the German people. Let us hope that it will be transferred to ordinary disc records and put on sale.

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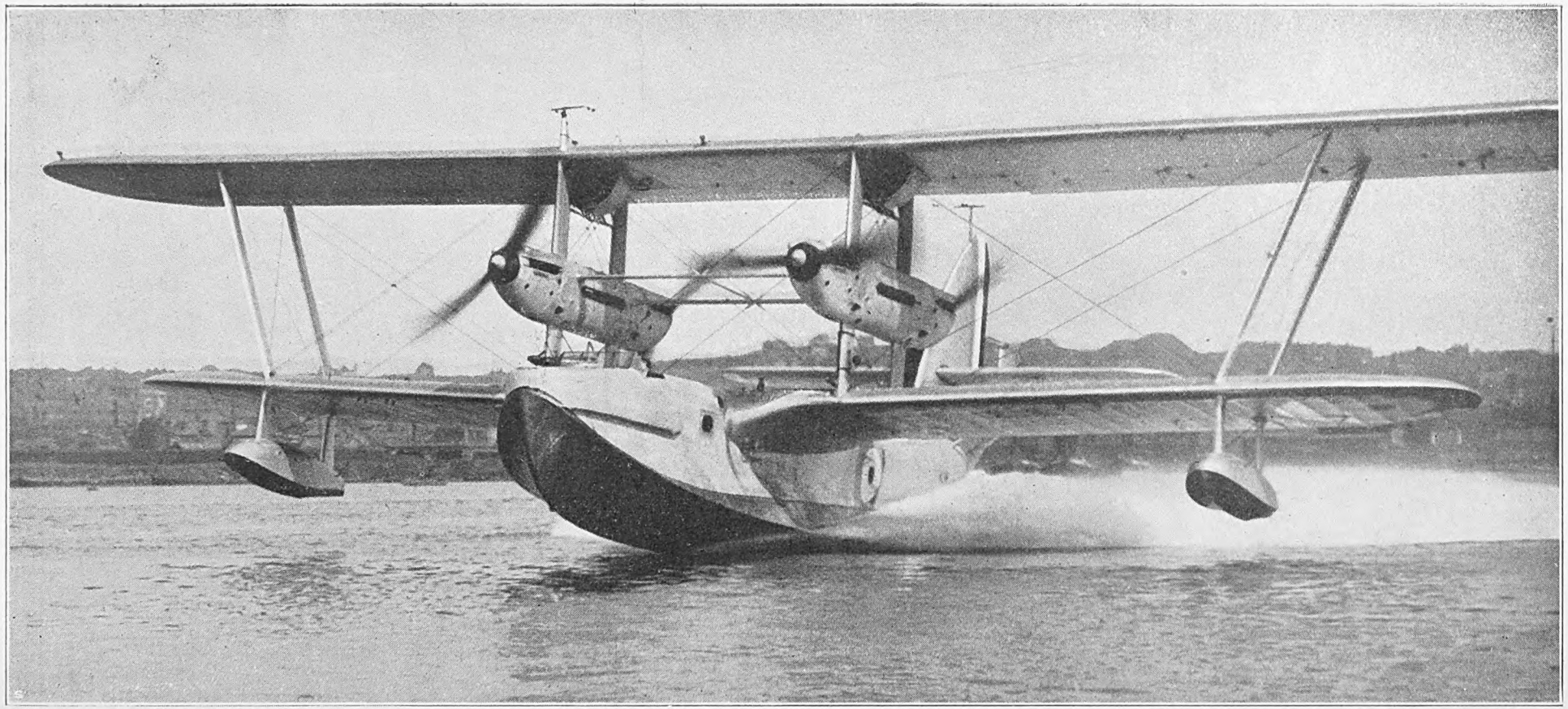

AN IMPERIAL ASSET.—The Short Singapore Mk. II (four Rolls-Royce F.XII M.S. engines) getting off the Medway at Rochester. The performance is higher than that of any flying-boat in the World.

'IRAQ, OIL, AND AIR POWER.

Unfortunately, all officers in the Royal Air Force, and all those whose chief concern is the selling of war material, do not read *The Times* as they should. Consequently they miss much valuable information which will directly affect their future careers. Therefore, in the humble hope that THE AEROPLANE may help the good work of our greatest newspaper, there appears hereafter certain information from *The Times* which bears directly on the supply of petrol and oil in our next great war,—and that means the strategy of the war as a whole. Regular readers of THE AEROPLANE will remember that the Desert Pipe-Line and the oil-port of Haifa were fairly fully discussed in this paper some five or six years ago.

Here is what *The Times* has to say:—

(From Our Own Correspondent.)

Paris, Aug. 24.

Somewhat conflicting reports are published here with regard to the arrangement arrived at as to the future exploitation of the Iraqi oilfields. They should be accepted with reserve, as the official departments concerned here refuse information. It was stated here, when King Feisal visited London, that he intended to come to an arrangement with the British Government for more rapid action in developing the oil resources of Iraq. It is now stated that an agreement was reached not only about the port of Basra and the Iraqi railways, but also about the exploitation of the oil resources of the country.

The position is more complicated by the fact that at present the Iraq Petroleum Company holds concessions for the exploitation of the oil resources of Iraq. This company is the creation of the Turkish Petroleum Company, the German interests of which, sequestered during the War, were made over to France at San Remo. After the War the United States also claimed to take part on the principle of the open door, and in an official statement the participation of various groups in the company was arranged as follows:—Anglo-Persian (British), 23.75 per cent.; Royal Shell (Dutch), 23.75 per cent.; Compagnie Française des Pétroles, 23.75 per cent.; Near Eastern Development Company (United States), 23.75 per cent.; and the Gulbenkian Group (Armenian), 5 per cent.

This company's activities have been hampered for various reasons. The agreement between the French company and the French Government has been delayed owing to political disputes, and the position of the terminus of the proposed pipe-line has been the subject of further negotiations, British interests favouring Haifa and the French interests either Tripolis or Alexandretta, in French mandated territory. An international commission of engineers has surveyed the country for the pipe-line and railway, but its report has not yet been published.

Recently it was stated here that the agreement between the Iraqi Government and the Iraq Petroleum Company contained a somewhat stringent time clause for the exploitation of the oil reserves of the country, with the penalty

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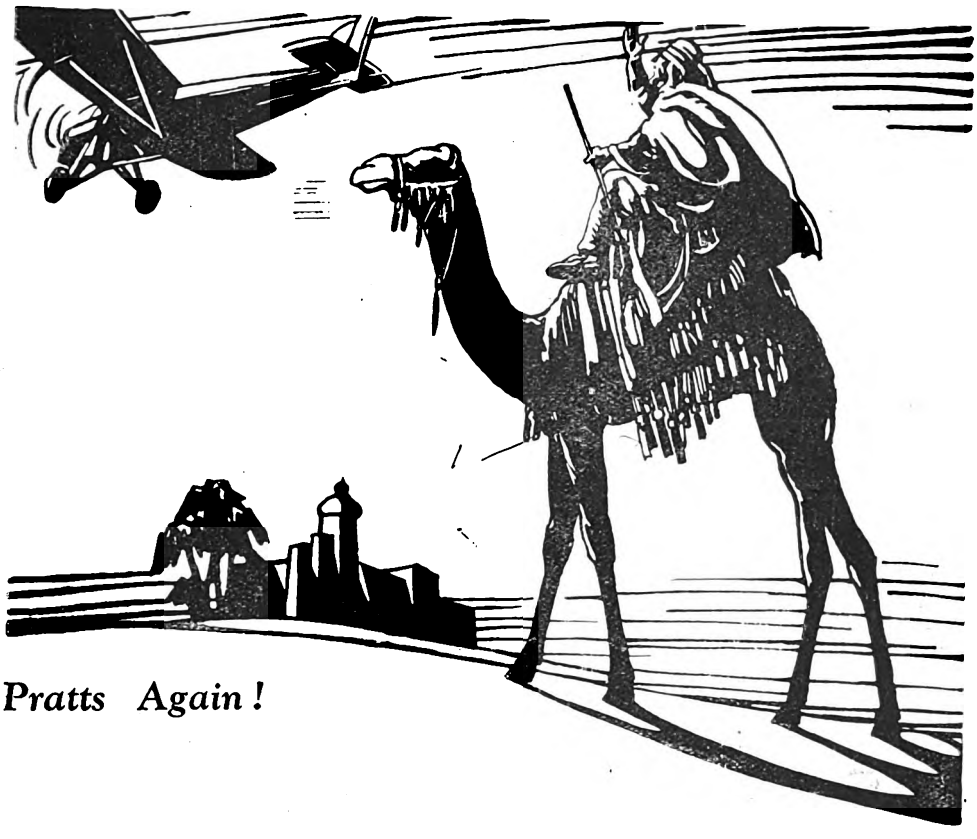

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By the fastest land and sea route it takes 7 days to go from London to Tangier and back.

Now the double journey of 2,400 miles has been flown in 22 hours 49 minutes by the intrepid British Aviator Captain C.D. Barnard, piloting an Arens-controlled de Havilland Puss Moth.

As in his recent flight to Malta and back he, of course, chose

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that unless these were developed further concessions would be offered.

It is now alleged here that the British Oil Development Company, in which Admiral of the Fleet Lord Wester Wemyss and Lord Inverforth are interested in conjunction with an Italian group, the Agenzia Generale Italiana, a German group under Herr Otto Wolff and a Franco-Swiss group, claims to act on the principle of the open door. It is further stated that the British Government has granted from the Colonial Development Fund the necessary funds as their terminus.

[The vital importance to the whole British Empire of having our own oil-port on the Mediterranean, and of having control of a pipe-line which will be well outside the sphere of influence of any other country, should hardly need emphasis. With Russia within bombing range of the Anglo-Persian oil-fields, and America needing all her own oil for her war in the Pacific, we may quite possibly have to depend entirely on Iraq oil for months at a time.—C. G. G.]

THE IRIS AT LISBON.

The Iris flying-boat which visited Lisbon last week actually alighted off the Bom Sucesso Seaplane Station of the Portuguese Navy at 17.02 hours Solar time. Two of the French Cams flying-boats went out to meet the Iris and flew back in formation with her from Cascaes. Unfortunately the wireless of the Iris had broken down and she could not warn our friends at Lisbon when to expect her, but the boats from Bom Sucesso judged the time very well and had not to cruise about very long looking for her.

The Portuguese flying-boats escorted the Iris in a large circle over the City so that everybody was able to have a good look at her, and then all three alighted down-stream off Bom Sucesso, as the wind was blowing straight up-stream. The mooring process was rather difficult as there was a strong tide running out. Ultimately the Iris was made fast at about 17.20 hours.

Mr. A. H. Hamilton Gordon, First Secretary of the Embassy, and Mr. A. H. W. King, the British Consul, were taken out to the Iris by a Portuguese naval motor-boat where arrangements were made with the crew. Flt. Lts. L. G. Maxton and M. H. Ely, Flg. Off. Charles Ryley and two airmen were entertained to tea at the Portuguese Air Station and Flt. Lts. Maxton and Ely were then taken to the Embassy. Mr. Ryley was left in charge of the boat.

Those officers of the Iris who were not compelled to stand watch during the night were entertained to dinner by Mr. F. E. F. Adam, Counsellor of the British Embassy.

Reports state that the flight was without incident except that for nearly three hours at the Southern end of the Bay of Biscay thick fog prevailed.

The mooring out in the Tagus was interesting because the tide proved to be stronger than the wind and the Iris lay facing up river and tail to wind. Those officers and men who did not sleep on board were very kindly accommodated by the Portuguese Naval Air Service at Bom Sucesso without notice, which much emphasises the degree of their hospitality.

This visit seems to have stirred up ideas in Portugal to the effect that a Royal Mail Air Service is to be flown regularly to Gibraltar and to South America, and there are strong rumours to that effect in circulation in Lisbon. So far as one can gather in this country no such schemes have even been imagined. To be successful such a line would almost certainly have to be run by the steamship lines which now hold the mail contracts. And at least five years must pass before the Marine Mind awakes to the possibilities preached in The Aeroplane last March. Nevertheless, the visit of the Iris, although she is a Service aircraft, is a step in the right direction.—C. G. G.

THE JEST OF THE CENTURY.

This, from the Berlin correspondent of *The Times*, is so beautiful that even at peril of infringing copyright it must be relayed to those people in Aviation who are so foolish as not to read our greatest newspaper:—

Berlin, Aug. 28.

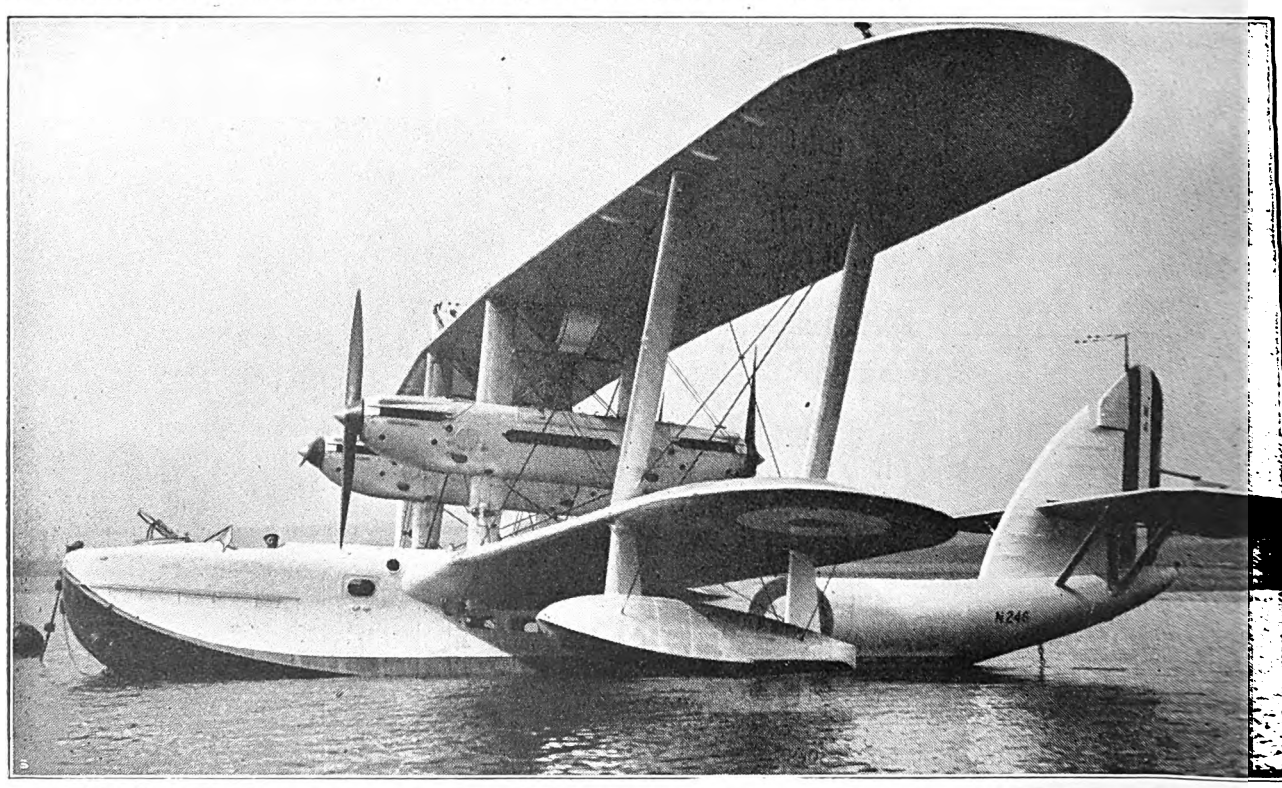
There has been an amusing sequel to last week's flight from Germany to New York, by stages, of Herr von Gronau, head of the civilian pilots' training school at Warnemünde. Herr von Gronau made this flight, in Amundsen's Dornier Wal, against the express instructions of the Ministry of Communications and of his immediate superior there, Herr Brandenburg, the head of the Aviation Department.

Herr von Gronau had a triumphant reception in New York, and was warmly praised in the German Press. The Minister for Communications, Herr von Guérard, was placed in a dilemma, which he gracefully solved by sending the pilot a telegram of hearty congratulation ending with the words:—"Please accept from me a presentation copy of Heinrich von Kleist's *Prinz Friedrich von Homburg*."

This work is a drama of insubordination. The Prince wins a battle, but is brought by the Great Elector to Court-martial and barely escapes being shot. It ends with the words:—"In the dust with the enemies of Brandenburg."

Some newspapers noticed this and attacked both the Minister and Herr Brandenburg for this "public slight." The Minister replied that he had not this passage in mind, but another, which says, "The law! That is not your will, but the Fatherland."

[Our good friends Herren von Guérard and Brandenburg are still up against the problem of how to punish and honour von Gronau simultaneously when he returns. One suggests promoting him to be Chief Traffic Officer at Tempelhof, where the vast expanse of sand will keep him thinking of his beloved sea, and will keep him as far from it as possible. On the principle that the old poacher makes the best gamekeeper, he ought to be rather good at the job.—C. G. G.]



THE FASTEST IN HER CLASS.—The Short Singapore Mk. II (four Rolls-Royce F.XII M.S. engines).

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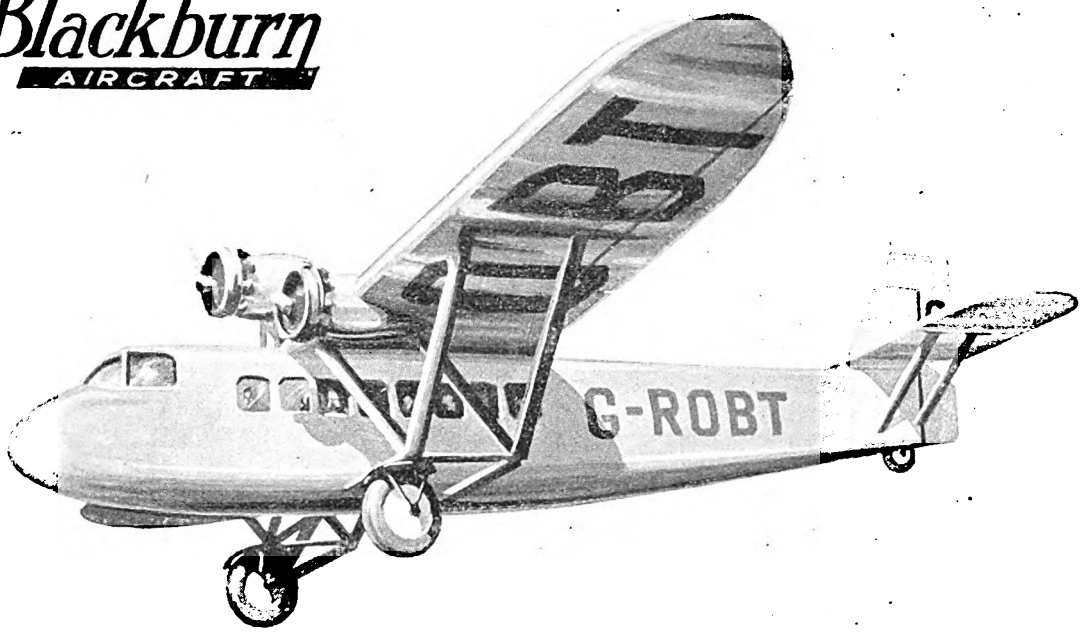

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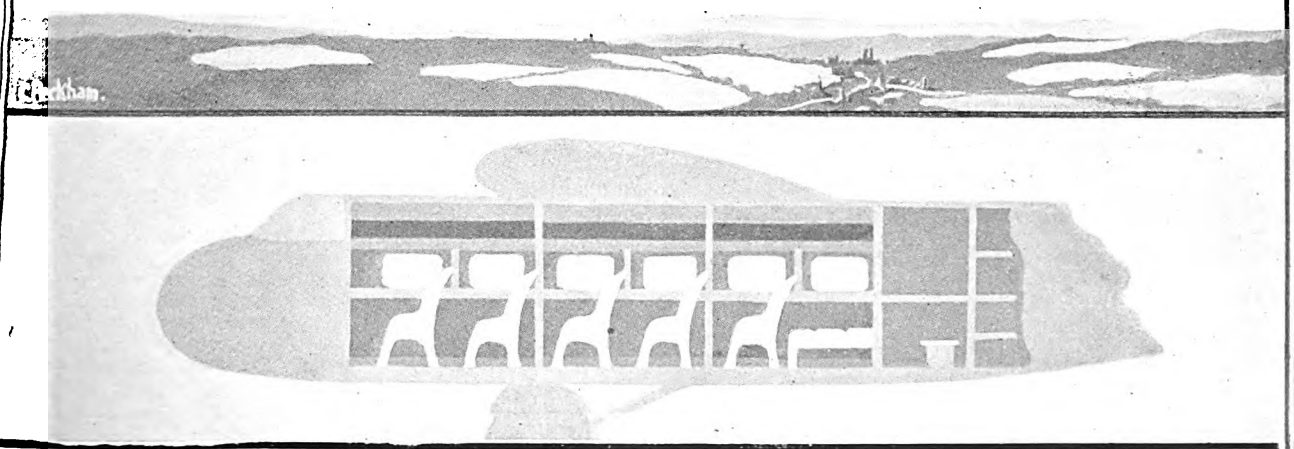

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C. G. COLEBROOK.

On Aug. 29 Charles Lewellyn Gerald Colebrook, the aeronautical member of the staff of *The Times*, died in his forty-sixth year at his home in Ealing of cancer, after a long illness, which he bore with the courage which fitted his character.

No writer on aeronautics has done so much good for the cause in the past ten years as has C. G. Colebrook. *The Times* has a public which includes all that is best and most intelligent of those who read the English language. To supply such a public with news and opinions which shall be on a fitting level is a great task and a great trust. And Colebrook never failed to be worthy of that trust.

By the nature of his office he was at once the historian of contemporary events and the teacher of the lessons to be drawn from that history. As a historian he was unfailingly correct. As a teacher he was clear and informative.

With such a public as his there is no need for fine writing to produce an effect, and there is no need to write down to a low order of intelligence. To that extent perhaps he had an advantage over other journalists. But, on the other hand, he had to maintain a standard of accuracy which no other public demands. And he maintained that standard.

Colebrook was not a brilliant writer, but he was pre-eminently sound. Whether he was describing a new type of aeroplane, or an involved position in the internal polities of the Flying Services or of the Aircraft Industry or of the Sport of Flying, there was no doubt about what he meant, and there was never a suspicion of unfairness or bias. He gave everybody a square deal. And as the natural result he got a square deal himself wherever he went.

He was trusted alike by the political and the Service chiefs of the Air Ministry, and by the head men in the Aircraft Trade. They knew that information given to him in confidence would be properly used, not as news to get in front of other papers but as a guide for his own policy and for the good of our nation.

In death he has been accorded the greatest honour that any man can have—a column obituary in *The Times*. It is an honour which is given only to men of peculiar eminence in the King's Services, militant and civil, in science, in commerce, in the arts, and in politics. For a servant of that paper to be so honoured is so unusual that I cannot remember another instance, though an editor of the class of Delane, or a foreign correspondent of international influence such as was de Blowitz, would be thus treated because of the importance of their work in the World. And no man's work in the World better deserves such an imperishable memorial as a place in the files of *The Times* than does Charles Colebrook's.

According to his own paper, he was born in 1885, the son of Mr. Charles Colebrook, formerly of the Stock Exchange. After working on the *West London Observer* and the *Richmond Herald* he became chief reporter of the *Richmond Times* and remained with that paper till in 1915 he joined the *Star*. Early in 1916 he enlisted in the Royal Flying Corps and served with No. 22 Squadron in France. In 1917 he was given a commission as a Technical Officer, as defective eyesight prevented him from becoming a pilot. As such he served at the Stores Depot at Milton and at the Repair Depot at Farnborough, and lastly in France again as an Inspector.

With such a peculiar range of experience he was well-fitted to deal with the technical and military sides of aeronautics as well as with the human types in all their strange varieties which have in one way or another affected Civil Aviation in the past twelve years. As a friend jestingly remarked of him, Colebrook's experience as a police-court reporter made the aviation game easy for him. He understood the types he had to tackle.

Furthermore, he had an unusual capacity for judging the immediate journalistic importance of an event, or an invention, as well as the effect of such things on the distant future. He had great foresight, coupled with quick appreciation.

His industry was untiring. No other writer on aeronautics has had the same assiduity in discovering details. And I have owed much to him in this way, for whenever my own observations of some current event lacked some fact which appeared in Colebrook's account of it, I have always found that the difference was due to his superior thoroughness and his thoroughness was only equalled by his accuracy.

In yet another way we of THE AEROPLANE have been indebted to him. His grave work on *The Times* did not allow him to display his quiet but incisive humour. Fortunately no such limitation applies to a paper such as this, which appeals to a specialised public. And many a keen criticism and salutary jest which has appeared in THE AEROPLANE has been taken from Charles Colebrook,—perforce without acknowledgment in print.

His devotion to his work is best proven by the fact that on his sick-bed he continued to write his able and sound articles for *The Times* whenever he felt strong enough. And, though he knew he was a dying man, he managed to get himself transported to Hendon to see the last rehearsal for the R.A.F. Display. In him British Aviation has lost one of its most valuable servants. Few of us will be able to pride ourselves when our time comes on the thought that we have done such good work.—C. G. G.

CHANCE VOUGHT.

On July 25, Chance Milton Vought, a pioneer American pilot, founder of the Chance Vought Aircraft Corporation, and a very powerful and prominent figure in American Aviation, died in his forty-third year.

Chance Vought learned to fly in 1912. After several years of active flying he formed the Lewis and Vought Corporation of Long Island City for the manufacture of aircraft. This company eventually became the Chance Vought Corporation. When this company was taken over by the United Aircraft and Transport Corporation recently Chance Vought besides keeping the control of his company became one of the principal officials of the holding company.

The Chance Vought Corpn. has been mainly responsible for the development of shipboard aircraft. This involved much pioneer work in connection with the development of seaplanes capable of meeting the stresses of catapult launchings and deck landings.

The entire output of the Vought Corpn. has been of a service nature and the present high state of efficiency of the United States Air Services and particularly of the U.S. Naval Air Service can be attributed largely to the successful series of Vought aircraft that have been produced to meet the increasingly difficult demands of Naval Aviation.

Much of Chance Vought's success in this direction was due to his combining a strong business sense with enough of the artistic temperament to raise him above the mere commercial level. He was keenly interested in music and in the better side of art on the stage,—one remembers vividly his brilliant conversation at Baltimore in 1924, when the subjects which occupied the minds of most of the people who were collected there were boot-legging or the sporting cancellation of the Schneider Trophy Contest by the U.S. Navy.

His keen commercial sense, and his sense of humour, are best illustrated by a remark of his at a dinner-party in New York. Somebody asked, at large, "I wish Mr. Chance Vought would tell us how he gets all the contracts from the Navy year after year."—Quick as a flash Chance Vought replied: "We change the colour of our upholstery and call the ship a new type."

The thrust at certain of his competitors went home, but when it was repeated at Washington and Philadelphia some of the slower-witted Naval people thought that it was a suggestion that they were easily gullible, and he was distinctly unpopular for a while. But the steadily increasing performances of the Corsairs and the World's Records which they accumulated year after year showed that the Vought products could not be ignored, and his personal tact and influence soon restored him to favour.

By his death a stimulating, and healthily irritating, influence has been removed from American Aviation. And, though one cannot claim that Chance Vought was among one's intimate friends, one regrets sincerely that we shall not meet again here.—C. G. G.

THE ACCIDENT AT WOODLEY.

A verdict of Accidental Death was returned at the inquest on the body of Mr. S. W. Giddy, an instructor of Philips and Powis, Ltd., of Woodley Aerodrome, Reading. Mr. Giddy met his death on Aug. 24 at Woodley when an obsolete Martinsyde single-seater which he was flying crashed after a power-dive

Mr. C. O. Powis, managing-director of Philips and Powis, Ltd., said, in his evidence, that Mr. Giddy was flying an obsolete war machine, testing it for its owner who was a private pilot. He was flying it at great speed, possibly 200 m.p.h. or more, and it developed aileron- and or wing-flutter when about 30 ft. from the ground.

Mr. E. D. Bigg, owner of the Martinsyde, said that Mr. Giddy had made several loops and high-speed dives before the fatal one.

Major Cooper, inspector for the A.I.D., said that wing-flutter was a fault practically peculiar to old machines, and had been eliminated from modern types. The Martinsyde in question had no certificate of airworthiness and could only be flown within three miles of the aerodrome.

[Wing-flutter is a modern ailment, like appendicitis, and like that disease, all kinds of things are attributed to it which actually have nothing to do with it. Plenty of pilots have pushed the old Martinsydes into a dive at terminal velocity, without the wings coming off, or anybody ever thinking of wing-flutter. What did not come out at the inquest was: (a) who re-conditioned the machine, and (b) what alterations were made to it. Without this information the verdict is worthless.—C. G. G.]

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Captain Barnard, who has just flown to the African Continent—the first solo non-stop flight to Africa—and returned next day, used the plugs he chooses for all his flying. The machine used by Captain Barnard was a Puss-Moth, actuated by Arens Safety Flying Controls.

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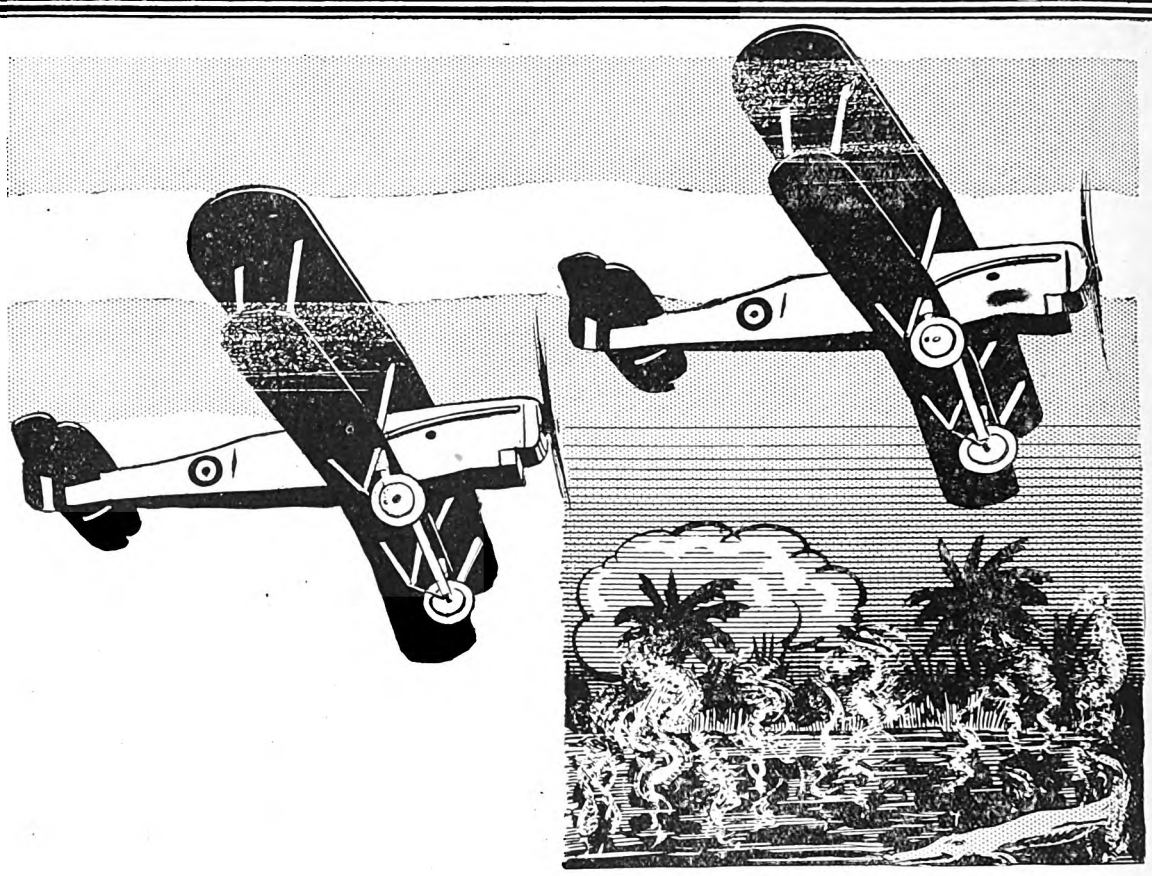

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THE ROYAL AIR FORCE.

The London Gazette.

Air Ministry, August 26.

ROYAL AIR FORCE.

GENERAL DUTIES BRANCH.—The following Flight Cadets having successfully passed through the R.A.F. College, Cranwell, are granted perm. comns., as Plt. Offs. with effect from and with seniority of July 26:—P. B. Coote, D. V. Angell, T. U. C. Shirley, J. Whitehead, A. G. Cleland, H. B. Wrigley, W. P. G. Pretty, C. E. Littler, M. B. Edwards, G. D. Stephenson, D. G. Vaughan-Fowler, R. B. Dashper, N. C. Walker, J. W. C. More, J. A. Chance, C. E. J. Baines, D. R. S. Bader, D. B. D. Field, J. S. Newcombe, W. R. Wills-Sandford, J. P. Massey.

The following are granted S.S. comns. as Plt. Offs. for four years on the active list with effect from and with seniority of Aug. 12:—C. E. Spencer, G. S. Coleman, H. O. Woodhouse, R. W. H. Harrison, E. C. Bates.

Capt. A. B. Woodhall, R.M., Flt. Lt., R.A.F., is granted a perm. comn. as a Flt. Lt. with effect from Aug. 1 and with seniority of July 1, 1929.

The following Plt. Offs. on probation are confirmed in rank:—H. E. Dicken (June 17); E. C. W. S. Smith (July 15).

The following Plt. Offs. are promoted to the rank of Flg. Off.:—C. B. Field (May 2); T. J. Rees (July 8); K. A. K. MacEwen (July 25); H. R. Dale (Aug. 22).

Group Capt. G. I. Carmichael, D.S.O., A.F.C., is placed on the half-pay list, scale A, Aug. 26 to Sept. 14, 1930, inclusive; Flt. Lt. H. V. German is placed on the retired list (Aug. 26).

The following are transferred to the Reserve, Class C:—Flt. Lt. D. S. E. Vines (Aug. 15); Flg. Off. S. H. White (Aug. 16). Flg. Off. R. T. Read relinquishes his S.S. comn. on account of ill-health (Aug. 11); Lt. C. L. Keighly-Peach, R.N., Flg. Off., R.A.F., ceases to be attached to the R.A.F. on return to Naval duty (Aug. 14).

MEDICAL BRANCH.—M. Pearson, M.R.C.S., L.R.C.P., L.D.S., R.C.S., is granted a temp. comn. as a Flg. Off. with effect from and with seniority of June 1; Flt. Lt. C. W. Coffey, L.R.C.P. and S., is transferred to the Reserve, Class D (ii) (Aug. 24).

DENTAL BRANCH.—Flt. Lt. P. E. Brown, L.D.S., is promoted to the rank of Sq. Ldr. on promotion to Major in the Army Dental Corps (July 14).

RESERVE OF AIR FORCE OFFICERS.

GENERAL DUTIES BRANCH.—The following are granted comns. in Class A.A. (ii) as Plt. Offs. on probation:—A. I. A. McDougall (June 19); J. M. D. Ker (Aug. 12). Flg. Off. C. S. Clarke is transferred from Class A to Class C (Aug. 24). Flg. Off. W. F. Davenport relinquishes his comn. on completion of service (July 4); Flg. Off. J. E. Clayton resigns his comn. (Aug. 1); Flg. Off. A. W. Wood relinquishes his comn. on completion of service (May 26). (Substituted for the notification in the *Gazette* of July 1.)

Appointments.

Week ending September 1.

GENERAL DUTIES BRANCH.—Group Captains G. I. Carmichael, D.S.O., A.F.C., to Half Pay List, 26/8. A. H. Jackson, to R.A.F. Base, Singapore, 21/8, to Command.

Wing Commander C. G. Tucker, to No. 209 Sqdn., Mount Batten, 25/8, to Command.

Squadron Leaders A. W. F. Glenny, M.C., D.F.C., to H.Q., Coastal Area, 25/8. T. E. Salt, A.F.C., to Aircraft Depot, India, 22/8. R. W. Chappell, M.C., to R.A.F. Depot, Uxbridge, 25/8.

Flight Lieutenant J. H. Sender, to No. 502 Sqdn., Aldergrove, 20/8.

Flying Officers D. N. Roberts to No. 504 Sqdn., Hucknall, 18/8. S. T. Morgan (Lt., R.N.), to No. 444 Flight, 26/8. G. M. Pares (Lt., R.N.), to No. 443 Flight, 25/8. E. J. George, to Station Flight, Upper Heyford, 20/8. D. J. Hughes-Morgan, to A. and G. School, Eastchurch, 21/8.

Pilot Officers W. H. Rayneau, to No. 3 F.T.S., Grantham, 19/8. R. W. H. Harrison, to No. 26 Sqdn., Catterick, 26/8. E. C. Bates, to No. 33 Sqdn., Eastchurch, 26/8. G. S. Coleman, to School of Army Co-operation, No. 16 Sqdn., Old Sarum, 26/8. H. O. Woodhouse, to School of Army Co-operation, No. 16 Sqdn., Old Sarum, 26/8. C. E. Spencer, to No. 100 Sqdn., Bicester, 26/8.

CHAPLAINS' BRANCH.—The Rev. C. A. B. Allen, to Home Aircraft Depot, Henlow, 1/8, for duty as Chaplain (Church of England).

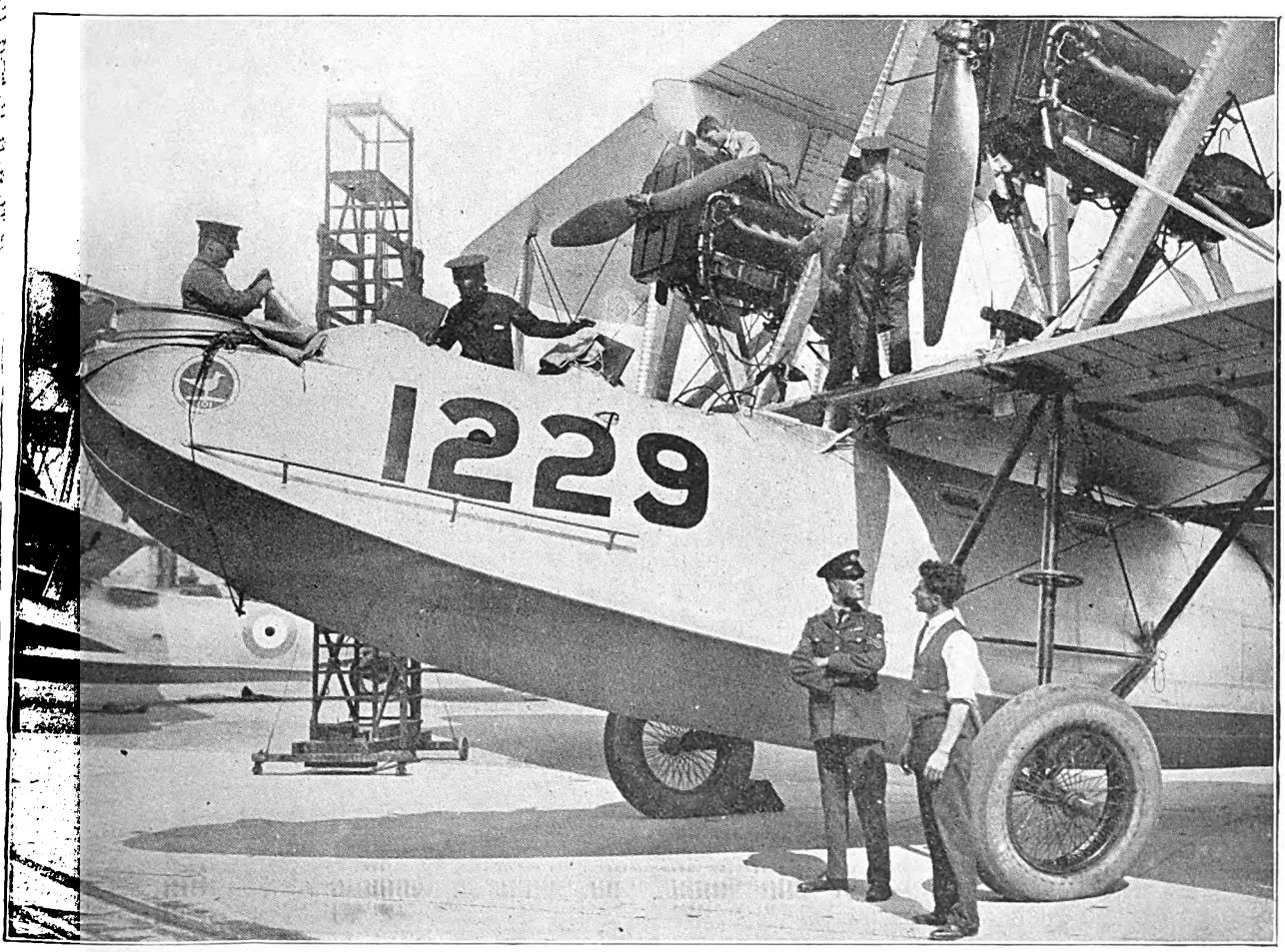
Air Marshal H.R.H. the Prince of Wales.

His Majesty the King has been pleased to approve that Group Captain His Royal Highness Edward Albert Christian George Andrew Patrick David, Prince of Wales and Duke of Cornwall, K.G., K.T., K.P., G.C.S.I., G.C.M.G., G.C.I.E., G.C.V.O., G.B.E., M.C., Personal A.D.C. to the King, be promoted to the rank of Air Marshal in the Royal Air Force.

His Royal Highness was appointed Group Captain, R.A.F. in June 1922.

The Baltic Cruise.

Four Supermarine Southampton Flying-boats (two Napier Lion engines) of No. 201 (Flying-boat) Squadron, R.A.F., left Calshot at 09.00 hours on Sept. 2 for a cruise in the Baltic. The night of Sept. 2 was spent at Felixstowe,—the actual cruise started on Sept. 3.



"HIC ET UBIQUE."—One of the Supermarine Southampton Flying-boats (two Napier Lion engines) of No. 201 (Flying-boat) Squadron, R.A.F., being made ready at Calshot for the Baltic cruise.

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The complete itinerary of the cruise is as follows:—
Felixstowe—Esbjerg, 360 miles, Sept. 3 and 4.
Esbjerg—Copenhagen, 170 miles, Sept. 5, 6 and 7.
Copenhagen—Stockholm, 430 miles, Sept. 8, 9, 10, 11 and 12.
Stockholm—Helsingsfors, 250 miles, Sept. 13, 14 and 15.
Helsingfors—Reval, 60 miles, Sept. 16 and 17.
Reval—Riga, 220 miles, Sept. 18 and 19.
Riga—Memel, 260 miles, Sept. 20 and 21.
Memel—Puck, 130 miles, Sept. 22 and 23.
Puck—Stockholm, 320 miles, Sept. 24 and 25.
Stockholm—Gothenburg, 260 miles, Sept. 26 and 27.
Gothenburg—Oslo, 160 miles, Sept. 28, 29 and 30.
Oslo—Esbjerg, 350 miles, Oct. 1.
Esbjerg—Felixstowe, 360 miles, Oct. 2

The numbers of the flying-boats are 1228, 1229, 1234 and 1058. A Royal Air Force Ensign will be flown from each machine when the Squadron is at anchor.

There is no sleeping accommodation in the boats and there will be no land parties, so all the work on the machines will be done by the flying crews. A crew of five is carried in each boat, three officers and two other ranks in two of the boats and two officers and three other ranks in the other two. When the Squadron is at anchor one officer and two other ranks will sleep near the anchorage.

Group Capt. E. R. C. Nanson, C.B.E., D.S.C., A.F.C., Officer Commanding the R.A.F. Base, Calshot, is in command of the cruise and is accompanied by Group Capt. E. L. Gossage, D.S.O., M.C., British Air Attaché in Berlin. The Squadron is commanded by Sq. Ldr. E. F. Turner, R.F.C., and the other pilots are Flt. Lt. A. C. Stevens, Flt. Lt. G. H. Smith, Flt. Lt. R. L. Ragg, A.F.C., Flt. Lt. M. C. Pascoe, Flg. Off. K. F. Jones, Flg. Off. R. B. Councell and Flg. Off. E. J. Lainé.

In addition to the first and second pilots on each machine there is a navigator, a wireless operator and a mechanic. Each member of the crew has comfortable seating accommodation and the navigator has a table for charts and instruments, either in the bows or amidships.

Smoking is allowed in these machines, except during refuelling operations, as there is no petrol in the hulls, all petrol being in tanks in the top plane. The tanks are refuelled by Zwicky pumps and a hose.

Each flying-boat carries a rubber collapsible dinghy stowed in the aft part of the hull. This, when pumped full of air by the foot-bellows, will support five men.

For this cruise each boat is carrying a spare airscrew and part of the general stock of spares. A complete list of spares and the boats to which they are allotted is in the possession of each pilot. Flying rations, emergency rations, and a first-aid outfit are stowed in each boat.

The equipment of each machine includes a sending and receiving wireless set and two of the boats are carrying, as well, a special short-wave transmitter of a new design for communicating with merchant ships in case of emergency. An anchor weighing 70 lbs. is also carried in each machine.

Each member of the crew has one suit-case of personal luggage (officers have to take mess-kit).

The Squadron will fly in open formation, and will move into close formation on approaching ports.

No parachutes are carried, but each member of the crew is obliged to wear a Reid life-jacket.

There is room inside the hull for the crew to stand upright and to move about to a limited extent and, although electric fans are only fitted in these machines in the tropics, the hull of one of them which had been standing in the sun all the morning at Calshot was not unduly warm.

No. 201 Squadron's crest, a seagull with the motto *Hic et Ubique*, is painted on the port bow of each machine.—

C. M. MCA.

The Cruise of the Iris.

The Royal Air Force Blackburn Iris III Flying-boat (three Rolls-Royce Condor engines), which flew from Mount Batten to Lisbon on Aug. 25, and a few days later to Gibraltar, left Gibraltar on Sept. 1 on the return journey to England. She is to stay a few days at Lisbon.

The Cambridge University Courses.

The undermentioned officers of the R.A.F., having successfully completed the advanced specialist course in engineering or signals at Cambridge University, and obtained degrees as indicated, are awarded the symbol E* or S* and are entitled to antedate for promotion:—

*Awarded Symbol E**:—Flt. Lt. A. F. Hutton—B.A. with 2nd class honours. Flt. Lt. R. O. Jones—B.A. with 3rd class honours. Flt. Lt. H. I. Cozens—B.A. with 3rd class honours.

*Awarded Symbol S**:— Flt. Lt. W. C. Yale—B.A. (ordinary). Flt. Lt. R. C. Wansborough—B.A. (ordinary).

Flight Lieutenants A. F. Hutton and R. O. Jones have been selected to attend the post-graduate course in aeronautical engineering at the Imperial College of Science and Technology, London University.

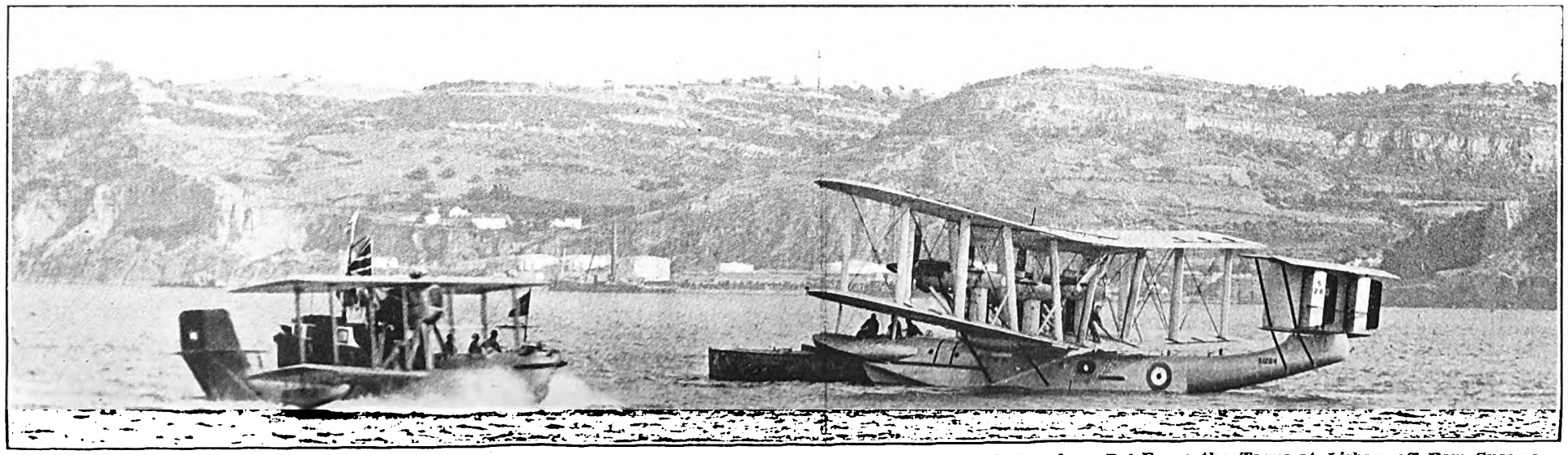
No. 34 Squadron, R.F.C. and R.A.F.

A former member of No. 34 Squadron is anxious to get into touch with any other members of that squadron with a view to having a reunion.

Former members of the squadron should write to R. Lucy, 5a, Weighton Road, Anerley, S.E.20.

Reminiscences.

Will any reader of THE AEROPLANE who served with 49 Squadron, R.F.C. and R.A.F., and who knew Capt. W. G. Chambers, who was killed in May 1918, be so good as to communicate with Major Thomas S. Chambers, 17, Clifton Gardens, London, W.9?



AN AIR AMBASSADOR.—The Blackburn Iris III (three Rolls-Royce Condor engines) of No. 209 Flying-boat Squadron, R.A.F., on the Tagus at Lisbon, off Bom Sucesso. The Union Jack behind the Portuguese flying-boat on the left is flying from a British motor-boat.

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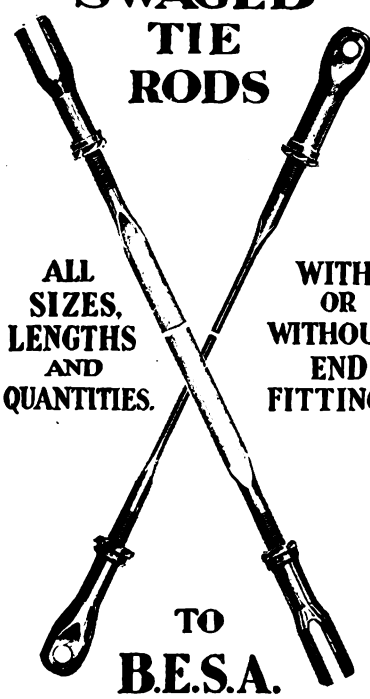

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ONE MOTH'S WAR.

The part played by a Gipsy-Moth Seaplane of the New Zealand Permanent Air Force in active service operations in Western Samoa against the rebellious Mau organisation is described in a report by Flt. Lt. S. Wallingford, N.Z.P.A.F.

The machine was embarked in H.M.S. *Dunedin* on Jan. 8, 1930 and stowed with the wings folded on an extension to X gun-deck.

The expedition arrived at Apia on Jan. 12 and a shore base was selected at Mantautu on the Eastern side of the harbour. Disembarkation was a tricky proposition. The Moth was hoisted out with wings folded, the wings were spread while still suspended and then the seaplane was dropped onto the crest of the swell and towed in. The base proved unsuitable for launching and hauling up owing to surf breaking on the beach and a new site was made at Milinuu on the West side of the harbour. Floating logs and isolated coral heads however prevented this from being an ideal situation.

The Base detachment consisted of one officer and two corporals of the N.Z.P.A.F., one Naval signalman and a permanent guard of seven stoker ratings who also formed the wader party. The Moth was secured in the open above the high-water line.

Flying began on Jan. 16 and the machine was re-embarked on March 11 Between those dates a total of 90 hours were flown.

Air work consisted of general reconnaissance and co-operation with the ground forces, maintenance of communication by message dropping and ferrying, distribution of propaganda and a very limited offensive action.

Maps of Opulu were poor and air observation was useful for the verification of the existing maps. A photographic reconnaissance would have been of the greatest value to the ground forces but the necessary equipment was not available. A private camera was used several times but the results were of little use.

Observation over cultivated ground was good, though over copra plantations very low flying was necessary to pick up men in the shadows. Over bush country observation was impossible at any height. Tracks through the bush were almost impossible to follow from the air except through the clearings. Smoke rising through the bush could be seen.

Along the coast observation was easier, as movement was usually confined to roads close to the coastline and through the villages but difficulty was experienced in distinguishing members of the Mau from loyal natives. The Mau lavalava of a dark blue or green skirt with a white stripe was recognisable under 500 feet but after the start of operations these were either not worn or turned inside out on the approach of aircraft.

Native mats hanging round the sides of a fale, the drying of lavalavas on a line, the preparation of baskets of food, and the general attitude of the natives, either running for cover or assuming an attitude of indifference, were signs of the existence of the Mau in these coastal districts.

On Feb. 10 a movement of about 200 of the Mau was observed in the Lefaga district and daily contact was maintained with this movement up to Feb. 14, when they encamped.

A short wave W/T set was fitted in the front seat for operation by a Leading Telegraphist from H.M.S. *Dunedin* but insufficient engine revs. made it impossible to carry a passenger during the first flights and constant adjustment made it impracticable for transmission by the pilot. It was therefore removed for use by a platoon on the South coast, and during contact patrol the Véry lights and message bags were the only means of communication from the air to the ground. Urgent signals were dropped by message bags in the vicinity of W/T posts and transmitted by W/T to *Dunedin*.

The dropping of message bags was of special use when the wireless of the Aleipata police post broke down. Circulars were also dropped at ground stations for chiefs to meet the Administrator and these were distributed by district police. Ferrying of officers was also undertaken.

Good seaplane landing areas were observed inside the main reef at Mulifunua, Aleipata and along the South West coast from Falelatai to Cape Fatuosofia.

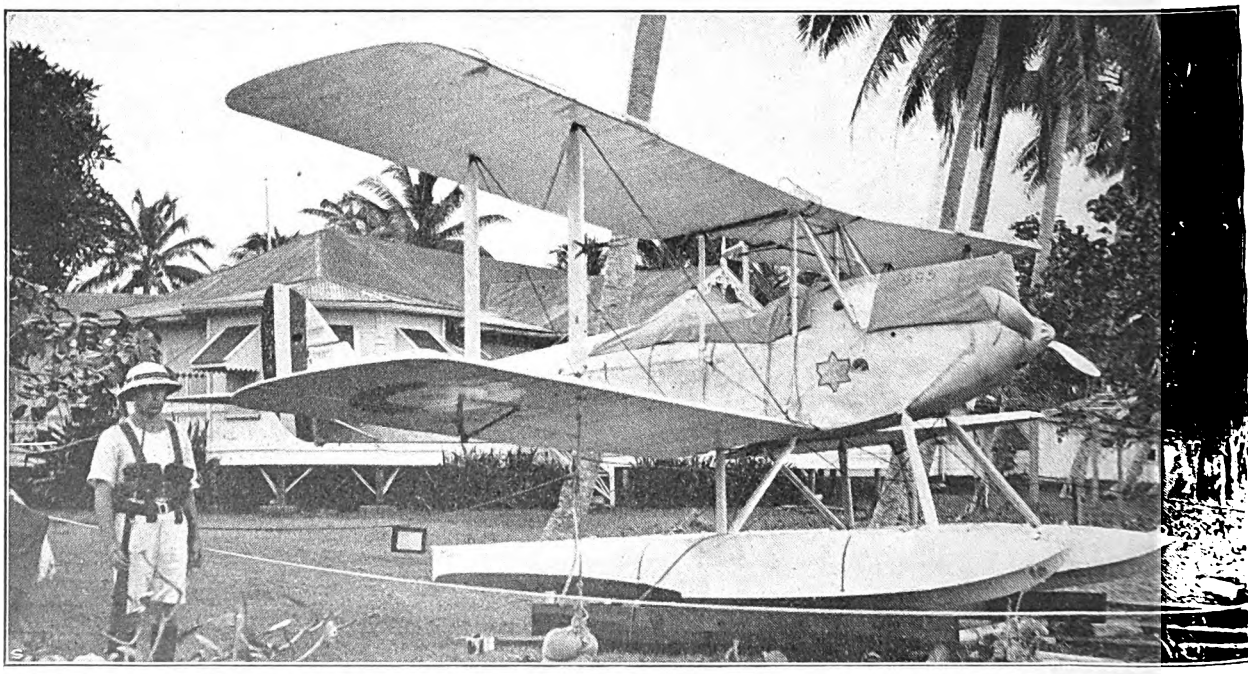
Four publications of two thousand pamphlets each were distributed at different times and by these pamphlets the Administrator was able to keep in closer touch with the natives. The pamphlets were dropped by hand in rolled bundles of 50 to 100 from a low altitude.

Offensive action was limited to the use of the Véry light which was used to signal the position of any men seen wearing Mau lavalavas and in turning back fautasis seen crossing the straits to Savaii. On Jan. 18 one small fautasi carrying 11 men was turned back by this means and a larger boat was forced to land hurriedly on the Island of Manono.

On Jan. 23 while flying at 50 feet near the village of Aufaca a stone was thrown dangerously close to the aircraft. A second stone being thrown the Véry light was fired off in return, whereupon the native fled into the bush. Unfortunately the light set fire to the Pulinuu's house and the fire had to be extinguished by his wife, but no more stones were thrown in that locality. Stone throwing is a favourite sport of the Samoan and a sport in which he is extremely accurate. The seaplane was subsequently treated with greater respect and the tale was spread among the natives that the aircraft spat fire.

In the Satafa Bay operations on Jan. 27 several paopaos escaping from the peninsula were turned back by this means.

A bomb consisting of 3 lbs. of dry guncotton in a cylindrical container was constructed by the Torpedo Lieutenant It was to be dropped by hand and would explode on impact by a striker held by a safety spring. On Jan. 18 this bomb was dropped ahead of the bows of a large fautasi



THE WARLIKE MOTH.—The New Zealand Permanent Air Force Gipsy-Moth at Mantautu, Samoa, where it took part in the operations against the rebellious Mau organisation.

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CAPT. BARNARD A

SHEER RELIABILI OF PUSS MO

FOR SERIOUS LONG-DISTANCE FLYIN

THE unfaltering reliability of the Puss Moth has again been conclusive demonstrated by Capt. Barnard's flight from London to Africa a back, non-stop each way. Flying at an average speed of 110 m.p.h., Ca Barnard completed 2480 miles in 22 hours 25 minutes — stopping o at Tangier. The machine was absolutely standard except for addition tankage and Arens Controls to rudder, elevators and ailerons.

This emphatic demonstration of high-speed reliability is even more markable when it is realised that the quickest overland route *for the outwa trip alone* takes 68½ hours. Capt. Barnard's flight was completed witho incident — both machine and engine operated perfectly.

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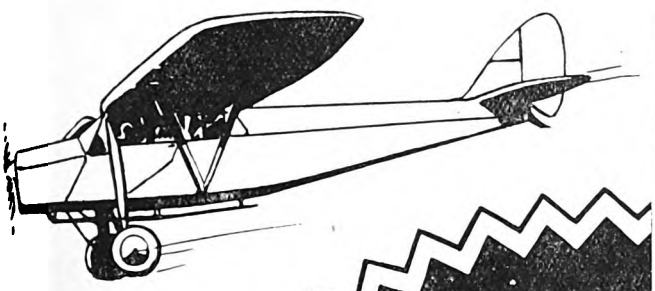
RAIN DEMONSTRATES



Captain **Barnard** at the **controls of** the Puss **Moth** about to **take off.**

2,480 MILES IN 22 HRS. 25 MINS

AVERAGE SPEED 110 m.p.h

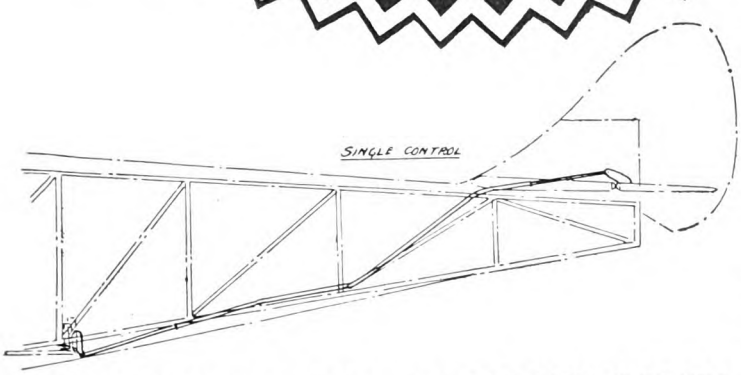


Diagram illustrating Arens Safety Control operating Elevator on Puss Moth G-AAXW —the machine in which Capt. Barnard recently flew from Lympne to Malta and back — stopping only at Malta — and London to Tangier and back — stopping only at Tangier. This machine is fitted with ARENS SAFETY CONTROLS to Rudder, Elevators, Ailerons and Engine and is the property of Arens Controls Ltd., 14 Regent Street, London.

ARENS CONTROLS LTD., 14 REGENT STREET, LONDON

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Fortunately it failed to explode as the fautasi was afterwards found to have belonged to an Australian Missionary.

The next bomb constructed was of similar design but fired by fusing pistol and safety fuse. This was kept in reserve. The bomb was only intended for dropping at a safe distance for demoralising effect.

A fitting to the rear starboard centre section strut was constructed in readiness for a forward Lewis gun if necessary. This was to be operated by the pilot with a field of fire on the starboard side, between the airscrew and the intersection of the front flying and landing wires. The same fitting could also have been used on the rear port centre section strut for use by an air gunner firing to the rear from the front seat. But Lewis gunfire was not required.

Forced-landing equipment was carried in the locker. It included a service revolver and ammunition for protection of the aircraft and for shooting down cocoanuts in lieu of rations. The emergency outfit also included a heaving line to enable the pilot to reach the ground in the event of landing on high trees.

The difficulties of maintenance were increased by the humidity which is almost double that of Auckland, but otherwise flying conditions were good. Tropical storms were trying but they were usually local and could be avoided. During propaganda-dropping on Feb. 1 a heavy rainstorm centred over the precipitous N.E. coast was encountered and the pilot was forced out to sea to avoid the high coast line. Flying at water level, the only means of direction, was by dead reckoning and this was by no means easy in blinding rain with gusts up to 50 knots. The Husun compass carried undoubtedly proved its worth.

No better type of aircraft than the Gipsy Moth seaplane could have been used for the general work required in these operations. The machine is easily handled in the air and its performance is almost up to that with the land-carriage. The ability to fly low over tree-tops at just above stalling speed and to crawl at water level for close observation of the villages was a great advantage.

As a seaplane, although it was particularly suitable for the limited run and shallow water of the lagoons from which it was worked, it has limitations which are not surprising considering the size and power of the machine. It will take off only in perfectly flat water, but conditions inside the coral reefs were such that the ocean swell was generally damped out even at the highest state of the tide.

Difficulty was experienced in turning out of a strong wind. In a wind of 20 knots it was risky to turn more than 60 degrees out of the wind direction, and at this angle taxi-ing was extremely dirty with the airscrew picking up a great deal of water. When the wind was of such a strength that turning was inadvisable, all manœuvring was done by drifting.

The use of a land machine in this country would have been impossible as there was not a suitable landing ground or beach in the Island of Upolu, and a forced landing inland would have meant a crash with either a land machine or seaplane. When within gliding distance of the coast the seaplane could have made a safe alighting at any time on nearly all parts of the coast except the N.E. coast which is unprotected from the open sea.

The Report concludes that although the aircraft was badly damaged when being embarked for return to New Zealand, no serious injuries were sustained and the accident points to the need for a modification in the sling fittings.

Flight Lieutenant Wallingford also pays a tribute to the great help received through H.M.S. *Dunedin* without which air operations would have been difficult and considerably hampered, and adds that the work and behaviour of the rigger and fitter, under service conditions with which they were unfamiliar, was all that could be desired.

THE NEW ZEALAND AIR FORCE.

The New Zealand Government has abolished compulsory military training and is to re-organise the existing Territorial Air Force on the lines of the Royal Air Force.

The new force will consist of one Wing, which will comprise four Squadrons, two for Army Co-operation and two for Bombing duties. Each squadron will consist of three Flights which will be based on different towns in the Dominion. This will presumably be in addition to the existing training organisation at Wigram aerodrome, Canterbury, and the small service organisation at the incomplete combined landplane and seaplane base at Auckland.

In April 1929 the late Sir Joseph Ward, then Prime Minister, in reply to a Navy League deputation said that the Government recognised the necessity of making preparations for air defence greater than those hitherto existing, but that it could not maintain two independent systems of land and air defence. He said that the change would be a gradual one and would involve the combination of the existing land forces and new air organisation.

Previously to this Air Chief Marshal Sir John Salmond K.C.B., C.M.G., C.V.O., D.S.O. made an inspection of the N.Z. Air Force and submitted a comprehensive report on the Air Defence of New Zealand.

It is presumed that the present reorganisation is based on the recommendations contained in this report.

Hitherto the N.Z. Air Force comprised a very small N.Z. Permanent Air Force and slightly larger force, known as the N.Z. Air Force (Territorial) which was a unit similar to the R.A.F. Reserve of Officers. This force was administered by the General Officer Commanding the N.Z. Military Forces who had as his Air Adviser the Director of Air Services, Sq. Ldr. T. M. Wilkes, M.C., who commanded the N.Z. Air Force.

Sq. Ldr. Wilkes has been attached to the R.A.F. in England for two years as New Zealand Liaison Officer.

A PILOT'S VADE MECUM.

[*Manual of Air Pilotage* (Revised February, 1930). Issued by The Air Ministry. Twelve chapters and eleven appendices, 6 x 9 in. Fully illustrated, and four folded maps. H.M. Stationery Office. From THE AEROPLANE Book Dept., Cannon House, Pilgrim Street, E.C.4. 3s. 6d.]

The latest edition of this comprehensive work adds to the excellencies of previous ones. Scarcely a detail of the pilot's cross-country equipment is left unmentioned, whether it be material or mental, and the thoroughness with which all are treated makes the book an invaluable text-book for students as well as what it purports to be: a manual of reference "published for the information and guidance of all concerned."

It is bound in the customary and common-sense way, with provision for interleaving. The pages are not numbered, and the index refers to chapter and paragraph. An index page is tabulated for the notation of amendments.

The chapters deal with the following subjects: position, direction and distance on the earth's surface, latitude, longitude, angles, etc.; maps, grids, scales and signs; charts, scales, bearings, etc.; map reading; compasses; direction-finding wireless telegraphy; air pilotage instruments; the triangle of velocities; practical air pilotage; operations and tactical exercises; meteorology and ground organisation. The appendices cover various formulæ, tables and mathematical methods for calculating drift, windage, and conversion of scales.

The elementary portions of the book are practically unchanged except where new methods affect their treatment. The chapter of compasses is even more complete than before and deals with more recent types than previous editions, and directional wireless is also treated in its more up-to-date aspects. The chapter on meteorology is a very complete course on this subject.

This edition contains all that the ordinary pilot needs to know for cross-country flying.—F. D. B.

ANOTHER INJUSTICE TO ENGLAND.

A complete inability to understand the psychology of the ordinary Englishman is one of the worst failings of the citizen of the United States as represented by his film producers. In the most recent talking film of the War 1914-8, *The Dawn Patrol*, an attempt has been made to describe the life and activities of a Squadron of the Royal Flying Corps in 1915. Special stress is laid on the inefficiency of the British equipment and the extreme youth and lack of training of the pilots as compared with those of Germany. But the film producer has not been content to record this fact, he has made the flagrant mistake of trying to prove that these handicaps reduced a Squadron of the Royal Flying Corps in the Field into an undisciplined bunch of maudlin, hysterical, and drunken pilots.

He has shown two successive Squadron Commanders drinking neat whisky before breakfast, shouting and arguing with their subordinates, accusing themselves of being executioners, and practically bursting into tears, because they had to order their Squadron into action instead of going themselves.

That all the pilots speak with an American accent, use American expressions, wear modern American flying kit, and call each other and their N.C.O.s and men by their Christian names, are minor annoyances, but that they have made British officers behave like drunken cowboys is not so easily forgiven, even in these days when so much has to be forgiven to neurotic war-novelists and ignorant film producers.

On the other hand some of the photography is wonderful, the battle scenes taken in the air and the bombing (by a single-seat fighter loaded with at least 10 tons of bombs!) of a German rail-head. The spectacular effect of the bombing and low-machine-gunning is considerably heightened by the fact that it is done over country more reminiscent of Afghanistan than France.

With great originality the producer has entirely omitted the usual "heart interest." There are no women in the film at all, not even a Café scene with the inevitable blonde, but it is all the better for that. The women members of the audience however will deplore the untimely end of Mr. Richard Barthlemess, the only convincing actor in the film.—C. M. MCA.

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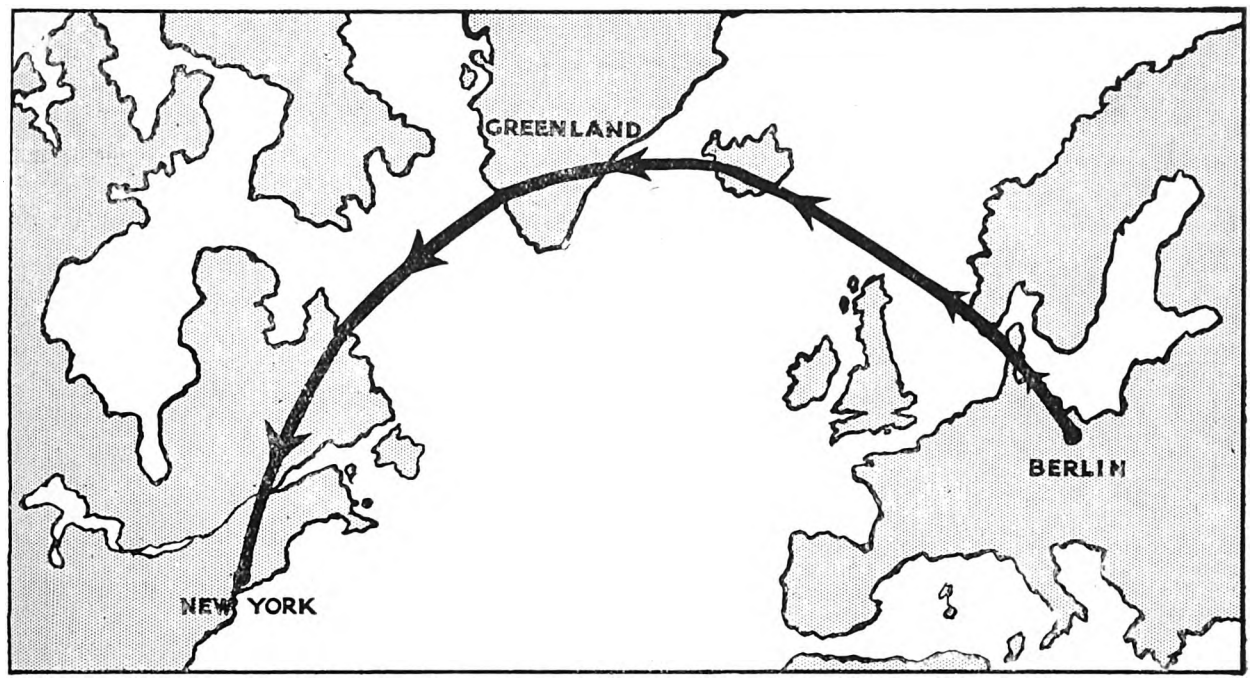

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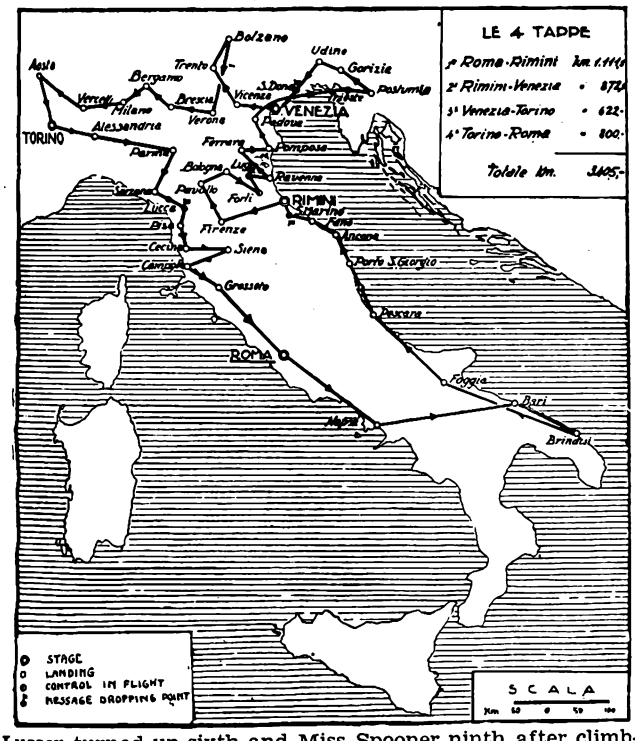
THE LIGHT AEROPLANE
AND THE FLYING CLUBS.

THE "GIRO AEREO."

Miss Winifred Spooner has again proved herself the best representative of British sport by her flying in the Italian *Giro Aereo*. That she was the only British representative does not affect her standing in the least, particularly as she defeated some quite good people in the *Challenge de Tourisme*.

In the initial tests Miss Spooner, minus wheel brakes, a cabin, and other qualities *de luxe*, only won 45 marks, which placed her 38th on the starter's list, and such redoubtables as Herr Lusser, with 63 marks, got away first, with Lieutenant Lombardi and Major de Bernardi not far down the scale.

On the first stage Col. Sacchi of the *Regia Aeronautica* arrived first at Rimini, the control for that day. Herr



Lusser turned up sixth and Miss Spooner ninth after climbing to second place on part of the trip, and then losing her course somewhat in heavy clouds. Major de Bernardi withdrew because of engine trouble, much to the disappointment of his many admirers.

The second stage followed a very zigzag route to Venice, by Florence, Bologna, Ravenna, Padua and Trieste, and Miss Spooner took with her Count di Robilant as navigator over the mountainous countryside. She arrived in second place, four minutes after Col. Sacchi, who again took first position. The positions during the day varied a lot, but rival pilots agree on Miss Spooner's exceeding efficiency both on the line of flight and at controls. She apparently made every second count. Anyway, she had a most enthusiastic welcome at the hands of the Venetians.

Col. Sacchi, Donati, Lombardi and Lusser were the first four in order of classification, with Miss Spooner fifth and Herr Notz sixth. The order of arrival was not the final placing in any stage.

The third stage led the competitors from Venice to Turin by way of Bolzano, Trento, Verona, Brescia, Bergamo, Milano, Vercelli and Aosta, a total of 425 miles with eight landings. At Vercelli Miss Spooner came into collision with Signorina Fumagalli's Romeo 5 and both machines sustained slight damage. At the time of going to press no detailed account of the occurrence is to hand, but Miss Spooner was able to continue the race.

The last stage brought the circuit back to Rome from Turin. The handicapping system put Miss Spooner into 27th place for starting. She averaged 110 m.p.h. but was beaten on time by Col. Sacchi. Col. Sacchi fell below first place for the first finish of any of the four stages, and Herr Lusser was first, with Miss Spooner two minutes later.

Latest advices show that Miss Spooner was classified finally in fourth place. For this she received the cup for the Naples district, a statue given by the Minister of Justice, and two gold medals.

The prizes were presented by General Balbo, Italian Minister for Air, on Sept. 1.

OUR REPRESENTATIVE PILOT.

Miss Spooner's true class as a pilot has not yet been recognised in this country, because she has been overshadowed, even in the minds of flying people, by the newspaper advertising of other feminine pilots, and Miss Spooner herself has a rooted objection to the more vulgar kinds of publicity. That famous Italian paper the *Corriere della Sera* has had the artistry to publish the perfect description of Miss Spooner. After writing of the "Englishwoman's superb effort," the *Corriere* says:—

"What Miss Spooner has done in to-day's race is prodigious. We have never seen on our aerodromes a pilot with the authority, convincing style, and racing skill of this smiling and formidable woman."

Somehow the words "authority" and "formidable" fit Miss Spooner perfectly in spite of her charm and her extremely feminine method of jumping instinctively to a correct solution of a difficulty instead of wasting time in working it out.

The Times correspondent in Milan, quoting Lieutenant di Robilant who was detailed by General Balbo to show Miss Spooner the way over the second and very intricate stage of the course, and who flew as passenger with her on at least one stage of the journey, gave his impression of her as "Something fantastic. A pilot of real class. She has extraordinary courage and exceptional ability."

The best evidence about the engine comes from Miss Spooner herself, who telegraphed from Rome on Aug. 31 as follows:—

Arrived second Rome stop am fourth in competition stop did fastest time second and last stage Rimini to Venice Turin to Rome stop flew full throttle whole time engine never faltered in spite of great heat and still going strong.

COMPETITORS.—Miss Spooner talking to Herr Lusser, the German pilot. A news-agency intelligently described him as "the well-known Italian pilot Tedeschi."

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THE BRISTOL AND WESSEX GARDEN PARTY.

The annual garden party of the Bristol and Wessex Aeroplane Club on Sept. 6 will have an added interest this year, as it will include a special display for the members of the British Association for the Advancement of Science, who are holding their Annual Meeting for 1930 in Bristol.

This will be the first occasion on which the programme of the British Association has included a flying display and aeronautical exhibition. Several manufacturers have promised to send their latest types of aircraft for this meeting, and the Bristol Club are arranging an interesting display of aircraft and engine models. It is also hoped that the Curtiss Wind Tunnel will be on view by special arrangement with the Shell-Mex Company.

There will be competitions for visiting pilots, aerobatic exhibitions and the usual parachute jump. The programme will be carefully timed, but the Bristol Club intend making Sept. 6 an informal afternoon, and look upon this occasion as an opportunity of welcoming their numerous friends from other clubs, private owners and the Aircraft Industry.

THE INTERNATIONAL TOURING COMPETITION.

Besides the prizes already announced Miss Winifred Spooner is the winner of the Challenge Trophy presented by the Imperial Tobacco Company of Great Britain and Ireland. This Trophy is awarded to the British competitor who has the highest classification in the competition.

THE BEDFORDSHIRE CLUB.

On Aug. 30 the Bedfordshire Aero Club was well and truly inaugurated on its temporary aerodrome at Goldington. This latest addition to the aero-club family is starting on an eminently sensible basis as a branch of the Northamptonshire Club. It has its own president, officers and executive, but arranges with the older club for the use of machines and an instructor.

The meeting was opened by the President, Mr. P. M. Stewart, who had in turn been formally welcomed by Councillor H. R. Neate, vice-chairman, and then followed a really varied parade of aircraft.

Among the types represented were the Moth, Puss-Moth, Avian, Bluebird, Tom-tit, Autogiro, Redwing, Avro, Spartan, Klemm, and Desoutters of two kinds. A thoroughly representative show, and it deserved a larger public,—as did the rest of the display.

Messrs. Linnell, Tyzack and McCleary, of the Northamptonshire Club, put on a very neat formation flight, and Mr. Tyler demonstrated a Puss-Moth. An obstacle race which involved a variety of antics physical and digestive was won by Mr. Gough, of the Norfolk and Norwich Club [Who not so long ago was quite a sick man. Congratulations!—C. G. G.], and then Mr. McCleary, who is deputy-instructor for the same organisation, showed off the paces of Lord Willoughby de Broke's new Klemm (Cirrus III).

The balloon-bursting contest was one of the main events of the day. The prize was the "Air Annual" Challenge Trophy. It was won in brisk fashion by Mr. Rawson in the Autogiro, and his mount showed such unexpected agility that some of the early sceptics were heard to complain that his rotor gave him an unfair destructive capacity in the matter of balloons. Incidentally he ran dry of petrol, through a misunderstanding rather than a leak, and made a spectacular forced landing just over the hedge.

The "bombing" of a party of tourists was reminiscent of a similar happening at Sywell not long ago. On that occasion one of the party got run over in the rush, fortunately without much damage. This time the driver, Mr. Harry Brown, was seen afterwards sidling bashfully about the grounds apparently impersonating the R.100 in respect of holed and flapping fabric at strategic points. The premature explosion of a certain bomb had set fire to him in such wise that he turned his back to have the flames put out. As he was sitting on the petrol tank at the time the dangers of flying meetings to those performing on the ground would seem to be greater than is supposed.

The handicap race round Bedford was over four laps of a triangular six-mile course. Mr. Gough, flying his own Moth, won the Mobiloil Silver Cup, a very handsome trophy which becomes the property of the winner.

Demonstrations of the Bluebird, by Hon. Mrs. Victor Bruce, and of the Desoutter, by Mr. Schofield of N.F.S., rounded out an excellent show.

No less a success was the dinner which followed at "The Swan." The President was in the chair, and among those who made uniformly brief and happy speeches to appropriate toasts were Col. Parsons of Auto-Auctions, Mr. Neate, Mr. Stewart of the Northants Club, Mr. Linnell, Major Scott, C.B.E., A.F.C., who was with R.100 on her recent Canadian flight, and Mr. Gough of the Norfolk and Norwich Club.

Col. Parsons admitted to feeling like an impostor, inasmuch as he had never yet left the ground and, in view of his age, hardly expected to until the chariot came to take him to a better land.

Councillor Neate said that the Bedford Club positively seethed with tradition although so few knew of it. He paid heartfelt compliments and thanks to Mr. Stewart, the president, Mr. Stelfox, the secretary, Major Scott and the other founders for their unremitting work and wise guidance.

Major Scott pointed out the utter impossibility of running an air show without visiting pilots, and thanked the particularly sporting crowd who had made the day a real success. He also referred to the astonishing air-mindedness which he had found in Canada, the immense numbers of aircraft which he found at St. Hubert on the arrival of R.100, and the volume of daily business which flies to and from that airport. It was high time, he said, that we realised the value of the air as an unparallelled medium of transport and grew out of the antiquated notion that it was something to breathe.

Incidentally, the assiduous gentleman who filled our glasses (and a very superior and sparkling vintage withal) was the same Mr. Hodnett who performed that office on R.100 during her voyage to Canada, or, at least, who did so as long as the commodity lasted wherewith to keep him at it. We understand that they were out of sherry before they were into port. He registered immense appreciation of trans-Atlantic hospitality.—F. D. B.

Among the visiting aircraft were the following:—

Moths: Messrs. Gough, Colson, Deterding, Tyzack, Winn, Baxter, G. Linnell, J. Linnell, McClure, Malcolm, Rambaut.
Puss-Moths: Messrs. Buckingham, Tyler, Watson.
Avians: Messrs. Brett, Surtees, and Coates.
Desoutters: Messrs. Styran and Schofield.
Robinson Redwing: Mr. Trench.
Autogiro: Mr. Rawson.
Spartan: Miss O'Brien and Col. Strange.
Avro: Mr. Davis.
Bluebird: The Hon. Mrs. Victor Bruce.

TEACUPS AT HAMBLE.

Every so often the Hampshire Aeroplane Club desists from piling up hours for hours' sake and becomes more than usually sociable; and that is saying a lot.

On Aug. 31 they held a garden party, which they can do more gracefully than most clubs because they have a club-house and a lawn thereto, which was festooned with coloured lights ready for darkness.

Except for aerobatics and formation flying at intervals by Pilot-Instructors Dudley and Marsh, assisted by various Club pilots, and continuous streams of joy-riding visitors, the afternoon was not primarily aeronautical. Novelty motor races and a treasure hunt kept some of the guests busy, and Miss Maiden obliged with several attractive dance turns.

Prizes for all events took the form of free flights, but the four club machines, and three Spartans of the Simmonds Aircraft Co. Ltd., were in the air constantly with many more than the successful automobile contortionists. The day was fine and the air smooth, so everyone should have received a good impression.

ENERGY.—Lord Willoughby de Broke starting up his Cirrus motor at Bedford.

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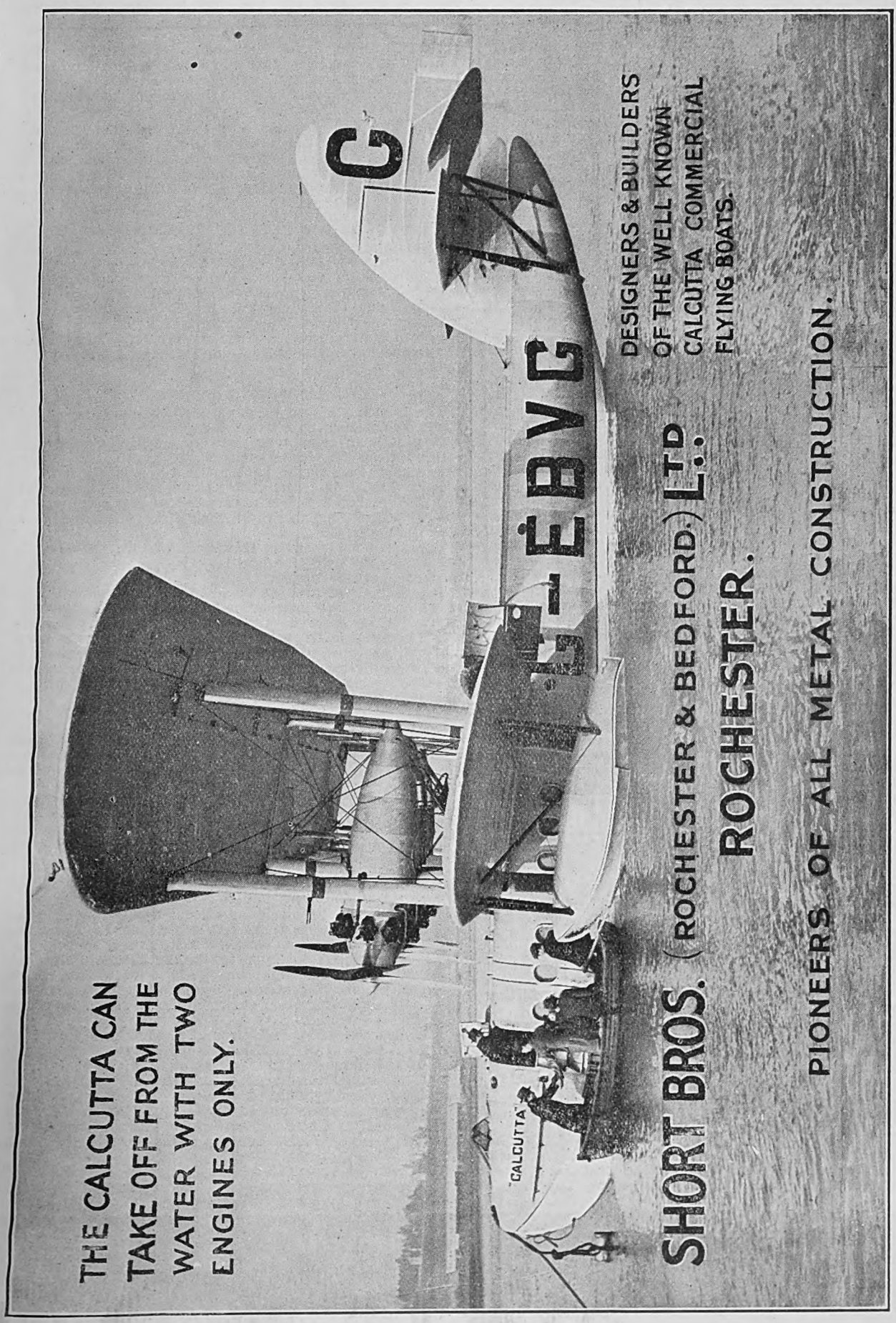

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"The Sailplane."

If you want a copy of the first issue of "The Sailplane" let us know not later than Saturday.—3 months 3s. post free. Single copies 3½d. from 175, Piccadilly, London, W.1.

Personally, we took the Spartan three-seater round Southampton with a load and found the view delightfully varied. Agriculture held sway to the north; westward the docks and wharves of Southampton, the *Majestic* berthed in company with bottoms from the seven seas, and the old ocean-faring town itself. Eastward the Hamble river was flecked with pleasure-craft in the sun, and along the foreshore the Southampton "Lido" was crowded with bathers, wet and dry. A scene most suitable to our sea-girt isle. Southwards stretched the misty Isle of Wight and the sea itself, busy at its vocation of girthing, and dotted with sail and funnel.

Hamble is extraordinarily fortunate in its position, not from the terrestrial point of view, as it is not easy to come at from more than one direction, but the airscape is unparalleled. The prospect is interesting and beautiful, and wandering at large over land and water is bound to give a fascinating feeling of liberation to the prospectively air-minded. Incidentally there seems to be good forced landing in the neighbourhood.

The last field event of the day was "terraplaning." This pastime, apparently introduced from Northolt by the Andrews Brothers, has a very Andrewsian quality of adventure. The victim sits on the "terraplane," to-wit, a sheet of three-ply, and is towed over the aerodrome at great speed behind a motor-car.

After that the large lounge was cleared and an orchestra contributed to the ideal ending of a very pleasant day.

Mr. Harrington, the very model of the overworked but cheery secretary, informed us that the Hampshire Club has done 1,800 hours this year with its four machines. This is tremendous. Four aeroplanes in club service means three in service most of the time, sometimes two, and four on very special occasions during the year. The ground staff deserves high praise, and so do those responsible for so high a standard of flying. Hamble boasts 300 flying members, of whom 140 are licensed.

Among the visitors were Messrs. Campbell-Black and Watson in Puss-Moths, the former a white one with Kenya Colony registration markings. Messrs. Parks and Coulson, in Moths; Gairdner, Dobson, Selfridge and Rose, in Avians; Styran, in a Desoutter II. The Spartans were flown by Col. Strange, H. T. Andrews and W. A. Andrews.

A LOW CEILING AT CRAMLINGTON.

The Newcastle Aero Club meeting at Cramlington Aerodrome on Sept. 30 suffered from a surfeit of weather of the sort which prevented it from reaching real heights of achievement. We know of several stout fellows who started for this remote spot, but the fog about Scarborough held them up and the only visitor who actually turned up was Flt. Lt. G. H. Stainforth in an Avian Sports (Hermes). Incidentally he won the Arrival Competition.

The Newcastle Air Race looked very like a runaway victory for Flt. Lt. Stainforth, but he consistently ignored one of the turning points and was disqualified. Mr. K. H. Leech, in a Desoutter, won the race with Mr. J. D. Irving in a Gipsy-Moth second and Sq. Ldr. W. L. Runciman (Auxiliary Air Force) third in a Klemm (Cirrus).

The bombing display left the car unscathed as usual, but a direct hit was scored on a Press photographer. This diversion stamped the event as an unqualified success.

Flt. Lt. Stainforth gave a very fine display of aerobatics, after which Mr. S. A. Thorn came through the mist in his Avian (Hermes) and immediately took the air for a further display.

The attack on an oil-refinery failed to produce thorough demolition until terrestrial accomplices crept out and set fire to the remains, but the amusement of the crowd was probably the greater.

The Newcastle Club deserve all credit for pushing through a show in spite of a crushing handicap, and the two visitors still more for getting there through the prevailing weather.

A FRESH DEAL.

On Saturday, Aug. 30, an impromptu air meeting was held at Sholden, near Deal, Kent, in aid of the Deal and Walmer War Memorial Hospital. Messrs. Stammers, Tapper and Major H. G. Travers of the London Aeroplane Club worked continuously from noon till dark bombing Mrs. Travers and Dr. Hall (the organisers) in the former's ancient automobile, bursting balloons and carryin gpassengers, of which there was a willing and plentiful supply.

Capt. C. D. Davis, Mayor of Deal, and other prominent citizens supported the meeting, which went with a swing from beginning to end. The field used, which has excellent approaches, was lent by Mr. Gilbert Elliot of Sholden, and residents are now discussing the possibility of acquiring a municipal aerodrome.

AN AIR FETE AT TOLLERTON.

The Nottingham Aero Club cordially invite all private owners and members of flying clubs to attend their air fête at Tollerton on Sept. 13. The programme will start at 14.30 hours and an arrival competition has its zero hour at 12 noon. One of the events, in which all visiting pilots are welcome to compete, is a 30-mile race.

Hotel accommodation can be arranged for pilots who wish to proceed to the Yorkshire Aero Club meeting at Sherburn-in-Elmet on Sept. 14.

THE HANWORTH ANNIVERSARY.

The National Flying Services central aerodrome at Hanworth celebrated its first anniversary on Sept. 1, not by any particular ceremonies, but by adding up its figures for the year. They are such as add satisfaction to mere age, though that age be but small.

Since Sept. 1, 1929, the Club has flown 7,500 hours, finishing with a record month during the August just past. In that month 24 members got their "A" Licences and 22 were sent solo.

The membership of the Hanworth Club is 998, of whom 544 are on the flying list and 146 are licensed. Thirty-eight members own machines.

The normal complement of aeroplanes at Hanworth is 20, of which eight are instructional and the rest for taxi and charter. The chief instructor, Mr. Max Findlay, has put in 800 hours of instructional flying in the year, which brings his total up to about 6,000. Mr. Findlay's qualifications include such diverse talents as a blood-thirsty war record and a rather good reputation as a judge of show cattle in Aberdeen, where they know their beasts.—F. D. B.

IMPORTANT DATES.

Sept. 1—6.—International Congress on Air Navigation at The Hague.
Sept. 6.—Official opening of Mr. Lindsay Everard's private aerodrome at Ratcliffe, Leicester, and the race for the S.B.A.C. Challenge Cup, for Light Aeroplane Clubs.
Sept. 6.—Bristol Air Garden Party to the British Association.
Sept. 27.—Air Meeting at Hanworth.
Nov. 28—Dec. 14.—International Aero Exhibition in Paris.

SOMETHING NEW FOR BARRACK-ROOM LAWYERS.

A week or two ago a certain aeroplane of the Norfolk and Norwich Aero Club was due to fly from Newcastle to Norwich, but inquiry by telephone after it was overdue revealed that it had left Newcastle in very bad weather. Application at all aerodromes on or near the route failed to bring anything encouraging to light, so the Yorkshire Police were invoked. The route was over quite unpleasant country, whereon one might remain undiscovered for days if forced down,—strange as such a statement may seem in relation to peaceful England.

The said Yorkshire Police roundly remarked that it was not their job to trace overdue aeroplanes. After an interchange not unmarked by asperity on both sides, the Law agreed to conduct an investigation provided the costs were paid, and accordingly did so.

The missing pilots turned up at Hull later. They had wisely landed in a field and waited for the weather to clear, but were unable to make communications with the anxious watchers.

The principle involved is by no means simple. If the Civil Authorities undertake to make expensive expeditions

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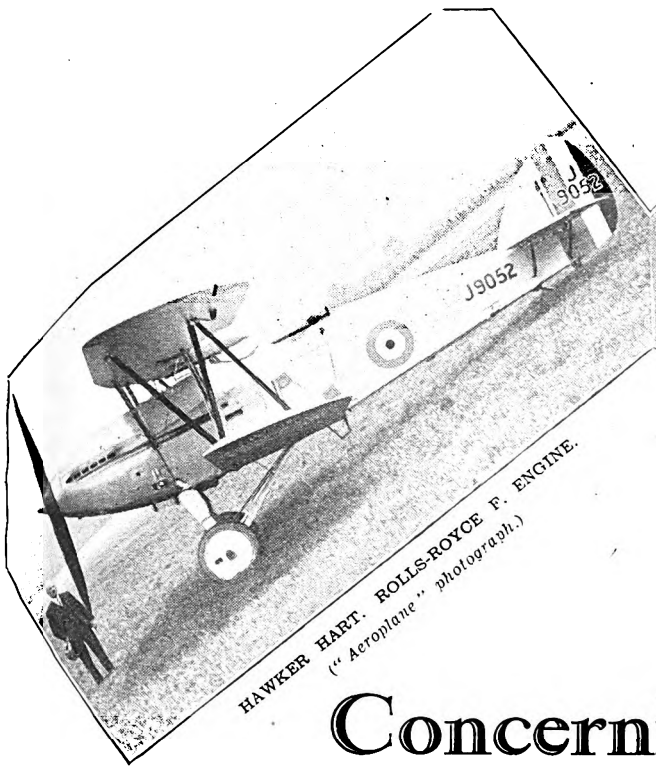
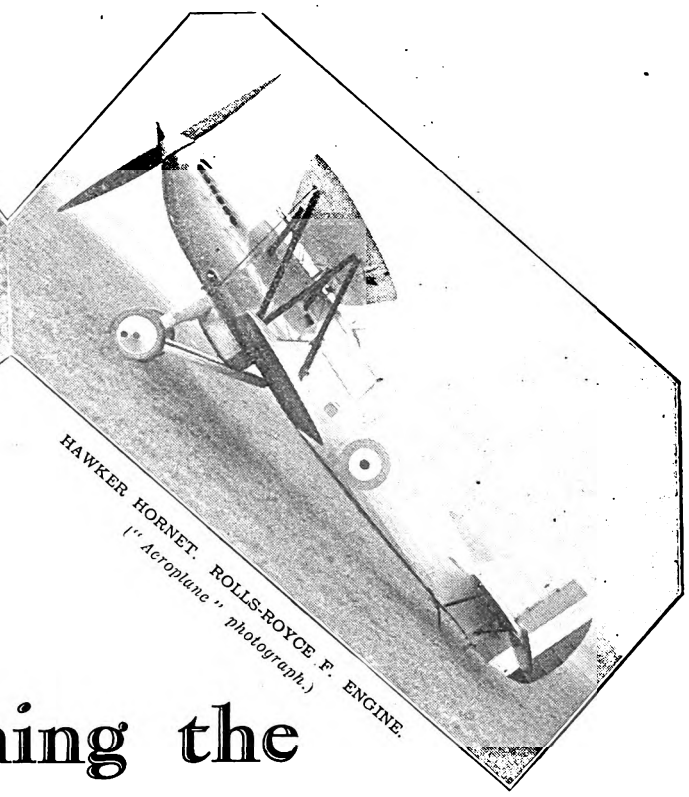


HAWKER HART. ROLLS-ROYCE F. ENGINE.
(" Aeroplane " photograph.)



HAWKER HORNET. ROLLS-ROYCE F. ENGINE.
(" Aeroplane " photograph.)

Concerning the Air Exercises of the R. A. F., 1930

" I saw a succession of striking raids which showed dramatically the advantage of high speed in bombing. Although the 'HARTS' were less than 2,000 feet up the defending fighters, actually far inferior in speed, had no chance. It was 180 miles per hour versus 150 miles per hour."—*The Daily Telegraph*, Aug. 13th.

" To the ordinary observer there seemed to have never been any hope that the defence could come up to these fast machines." —*The Times*, Aug. 13th.

" A completely successful raid by flights of 'HARTS,' the fastest of all the bombers, which left the defending fighters standing." —*The Times*, Aug. 14th.

" The Day Bomber already referred to is the 'HART.' The only already adopted fighter which could deal with it is the 'HORNET.' " —*The Daily Telegraph*, Aug. 16th.

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in search of pilots who may be seriously hurt or merely temporarily delayed the ultimate effect may be quite undesirable. At the same time a force obviously existing in the interests of public safety and welfare can hardly disregard an appeal for help which they are eminently in a position to fulfil.

Travellers by any other means normally expect help from the police in their vicissitudes, but motorists depend far more on their own organisations, the A.A. and the R.A.C. The obvious course is either to form a service for air travellers which shall be comprehensive or to extend such as exist. Both the motorists' organisations stand ready to assist their members who travel by air, but their sphere of action will have to be pushed beyond ordinary motoring limits, even unto the wilds of Yorkshire.

THE LEICESTERSHIRE AERO CLUB MEETING.

On Sept. 6 the new private aerodrome of Mr. Lindsay Everard, M.P., President of the Leicestershire Aero Club, will be opened at Ratcliffe and the occasion is to be celebrated by an Air Meeting which is being organised by the Leicestershire Aero Club.

During this meeting the races for the Grosvenor Challenge Cup, the Air League Challenge Cup and the Society of British Aircraft Construction Challenge Cup will take place.

Official Air Ministry support has been accorded to this meeting and two demonstrations by aircraft of No. 43 (Fighter) Squadron will be included in the programme. The first will be a demonstration of formation flying by one Flight of three Siskins tied together by rubber cords and the second will be an exhibition of individual aerobatics by two officers of the squadron.

The programme will begin at 12 noon with the arrival of Miss Amy Johnson, C.B.E., who at 15.00 hours will officially open the aerodrome, and is advertised to fly a circuit thereof.

Apart from two of the three important races which will take place on Sept. 6 a full programme of events has been prepared to amuse the spectators from noon to 18.00 hrs. The Race for the Air League Challenge Cup will be flown at 12.30 hours and the race for the S.B.A.C. Challenge Cup at 14.30 hrs.

The Air League Challenge Cup will be in the form of an Inter-Club Relay Handicap Race and one or more machines from each Club piloted by one member of the respective Clubs will fly from Ratcliffe to Desford, change pilots and return to Ratcliffe.

The S.B.A.C. Challenge Cup Race is for club-trained "A" pilots flying club-owned machines and will be flown over a 33-mile triangular course by way of Ratcliffe, Desford, Glen Corse and back to Ratcliffe. The following are the entries for this race:—

Newcastle Aero Club: — Moth—G-EBQV.
London Aeroplane Club: O. J. Tapper—Moth—G-AABN.
Lancashire Aero Club: J. C. Sellars—Moth—G-AAWI.
Northamptonshire Aero Club: — — —.
Leicestershire Aero Club: H. P. Lavender—Moth—G-AAIF.
Leicestershire Aero Club: J. T. L. Baxter—Moth—G-AASM.

The Grosvenor Challenge Cup race will be flown on Sunday, Sept. 7, and the following is the list of entries for this race. The order is entrant, pilot, machine, registration lettering:—

Hunter, C. P., Hunter, C. P., Avian, G-AAWH. Law, H. R., Law, H. R., Widgeon III, G-EBRN. Jackaman, A. C. M., Jackaman, A. C. M., Puss-Moth, G-AAYE. "Wellworth, J.," "Wellworth, J.," Widgeon, G-EBRG. London Aeroplane Club, Travers, H. G., Moth, G-AABN. Ballardie, J. de C., Strange, Col. L. A., Spartan, G-AAGN. Lancashire Aero Club, Cantrill J. C., Avian, G-AAWI. Northamptonshire Aero Club, —, —, —. Cohen, E., Cohen, E., Avian, G-AAGR. Johnson, Miss Amy, C.B.E., —, Moth, G-AAAH. Runciman, W. L., Runciman, W. L., Klemm, G-AAWW. Guest, Capt. Rt. Hon., F. E., C.B.E., D.S.O., Spooner, Miss Winifred, Martlet, G-AAYZ. Dawson, L. S., Dawson, L.S., Civilian Coupé, G-AAIL. Rose, F/Lt. T., Rose, F/Lt T., Bluebird, G-AACC. Percival, E. W., Percival, E. W., Hendy 302, G-AAVT. Napier, C. S., Napier, C. S., Widgeon, G-AADE. Slade, Miss, Slade, Miss, Moth, G-AAIW. Leicestershire Aero Club, Baxter, J. T. L., Moth, G-AAIF. Leicestershire Aero Club, Lavender, H. P., Moth, G-AASM. Desoutter Aircraft Co., —, Desoutter, G-AAVO.

NIGHT FLYING AT HESTON.

From Sept. 9 to 15, inclusive, night flying will be demonstrated at Heston by Airwork Ltd. This is a new departure for civil, amateur and sporting flying in England, so a good deal of interest will attach to its introduction under really ideal conditions.

Two of the Airwork school machines are being provided with navigation lights and the aerodrome will be illuminated for the occasion by a floodlight. There will also be boundary and obstruction lights.

Dual instruction on Airwork machines, or on the pilot's own machine, can be got at about twice the daylight rates, and pleasure flying can be indulged in by those who want an experience somewhat out of the common.

A charge will be made to private owners flying their own aircraft for the use of the aerodrome and its lighting facilities, and such private craft must have navigation lights.

THE HONGKONG FLYING CLUB.

The newly-formed Hongkong Flying Club is more fortunate than most in the amount of financial encouragement it receives at the hands of its Government. An initial grant of sixty-thousand dollars (£12,000) and an annual subsidy of thirty thousand (£6,000) give it an encouraging send-off.

The Club was formed last year, but started operations on April 31, when the club-house and all it implied were opened formally by His Excellency Sir William Peel, K.B.E., C.M.G., Governor of Hongkong. The Club is quartered in a three-storey building which was formerly the property of a wealthy Chinese and its flying equipment consists of two Hermes Avians. One of them is now on floats, and in view of the impossible terrain for land flying the other will shortly be fitted with them.

The prime mover in the formation of the Club was Mr. R. Vaughan Fowler, Manager of the Far East Aviation Company Ltd., and Flg. Off. A. D. Bennett, R.A.F., gave voluntary help with pupils until such time as the official instructor arrived from England. The honorary secretary is Mr. A. K. Summers.

The Club at present operates from Kai Tak Aerodrome and is storing its machines in the R.A.F. sheds there.

IN THE FAR EAST.—The two Hermes-Avians of the Hong Kong Flying Club at the opening ceremony. Typical local country is seen in the background.

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THE SPARTAN ARROW.

THE LATEST SPARTAN.—The Spartan Arrow two-seat light aeroplane with the Cirrus-Hermes engine.
—("*Aeroplane*" *photograph.*)

One good idea leads to another, and following such a sequence Spartan Aircraft Ltd. have evolved the Arrow from the Simmonds Spartan. The first type was outstanding for its two features of robustness and interchangeability. In the Arrow these features have been retained. Further various features to which present-day private owners have become accustomed, such as a flat angle of glide, have been added.

There are people who contend that a steep angle of glide is a good thing, in that it enables one to get into confined spaces where floating qualities would land one in the hedge, or beyond. This, like the question of whether turning into wind is easier than turning downwind, is a problem which will ever be heatedly debated.

The Arrow has a good angle of climb, and a feature of special value in hotter climates is its greater span and over 3 per cent. more wing area than other machines in the same class. This lighter wing-loading means that in air of less density than our own the excellent climbing and slow-landing properties of the Arrow remain good.

This problem of rarefied air on aerodromes at high altitudes and in the tropics has more than once caused trouble by its nasty habit of decreasing the performances of visiting machines.

Interchangeability.

Although the Arrow has the Clark Y aerofoil-section, as differentiated from the symmetrical one used on the Simmonds Spartan, almost the same features of interchangeability have been ingeniously retained. As the machine is sold, the four ailerons are interchangeable, as are also the two sides of the elevator and the two sides of the undercarriage.

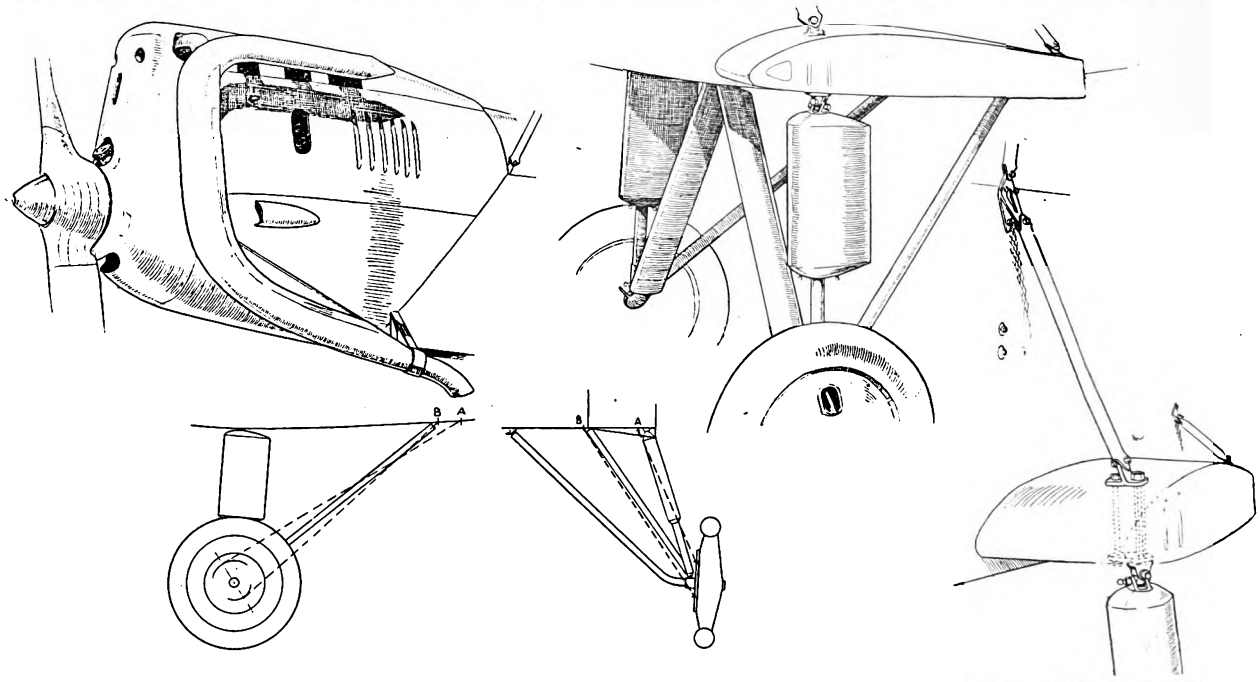
There is no particular reason why one should want to shift suddenly the upper-port wing to replace the lower-starboard one. Nobody wants to play "General Post" with their wings, unless they are trying to wangle their registration lettering. Interchangeability only comes in when it comes to keeping spares.

This is where the Arrow scores. One key-wing will replace any of the four. This wing has a removable tip, which bolts onto either end of the spars. The aileron is half the span, exclusive of the removable tip, so by having a removable trailing-edge, the aileron and trailing edge can be made to change places. There are, after all, other ways of making the same wing do two jobs, not only can you turn it over, but you can make the outer end the inner, as is done with the key-wing.

The ailerons are interchangeable because they are symmetrical in section. The aerofoil-section which is used for the wing has a symmetrical trailing-edge.

Normally, the wing-bracing wires are not interchangeable, as this necessarily means increased weight, but one wire can be kept in store as replacement for any of the wing-bracing wires.

A complete list of spares, therefore, boils down to one key-wing, one aileron, one wire, one rudder, one half-ele-



SPARTAN DETAILS.—At the top the new Spartan exhaust-pipe, in this case shown on a three-seat model, and the undercarriage of the Arrow. Below on the left is shown the arrangement of the cable bracing to overcome torque, when brakes are fitted, and on the right is shown the bottom wing-stub bracing.

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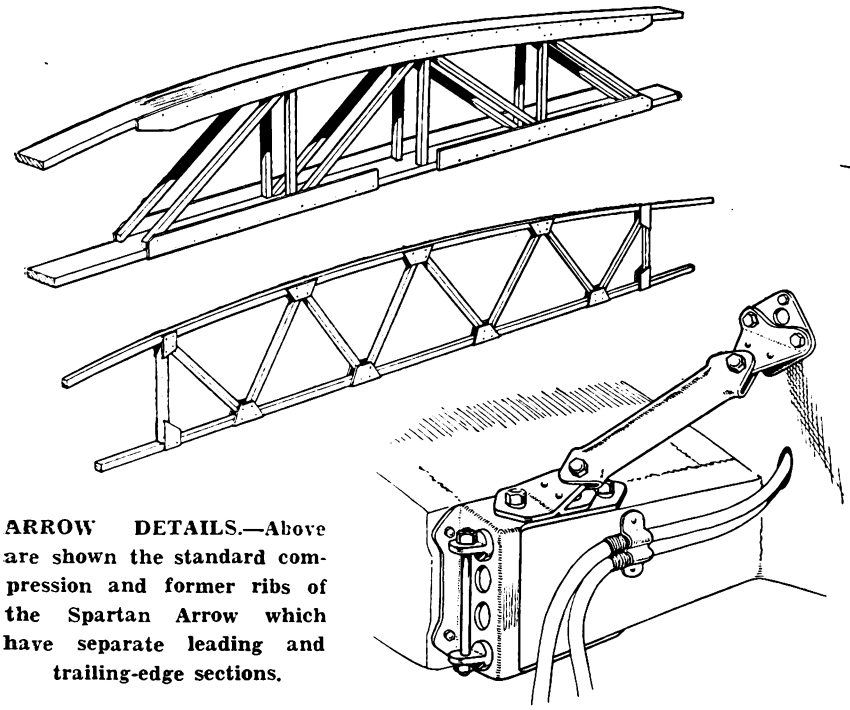
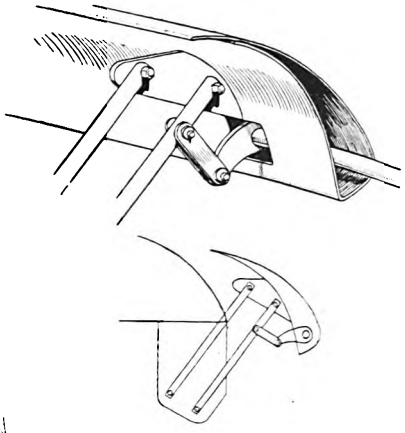


ARROW DETAILS.—Above are shown the standard compression and former ribs of the Spartan Arrow which have separate leading and trailing-edge sections.



Above is shown the method of suspension of the wing slots, which, unlike most light aeroplanes, have torque tubes. On the left is the lower wing root and rear spar hinge fitting.

vator, and one side of the undercarriage. This is not a very imposing list, and one foresees that this feature of simplified spares is going to be of great appeal to those in the Dominions and abroad generally,—people in fact who are far from home and might in the ordinary way find spares difficult to get.

Another good feature is the catch for holding the folded wings in place. The catches are opened by a ring placed on the bottom corner of the fuselage on either side close to the wing-roots. With this gadget one can fold the wing and clip it in position without moving from the wing root. I tried it myself.

There is perhaps another point that should receive special mention, and that is the excellent method adopted for the aileron controls. These are all external, not a particularly beautiful arrangement, but one which simplifies maintenance. The system will be described in detail in its proper place. A neat universal joint between the push-pull rod and the lever at the wing-root allows the wing to be folded without any of the buckling of wire round the pulley that can take place in the more conventional arrangement.

Description.

The Spartan Arrow is a two-seat tandem biplane of conventional appearance. It has been designed for the man who wants a comfortable and robust machine and so it is particularly suited for school work. Its interchangeability is of special interest to the overseas market.

The Wings.

The wings have the usual single-bay biplane arrangement. But there are four ailerons, which is not so usual. The centre-section struts, of steel tube, are splayed slightly outwards, to take a 22-gallon tank, which is camouflaged in quite a thin section. There are six struts, four verticals, and two which brace the front spar forwards to the fuselage. The cross-bracing wires are anchored to the upper longerons, and not to the crown of the decking. The interplane struts are of streamline steel-tube, carried on the heads of eye-bolts which have been semi-beheaded. By having the flying and landing wires of the same lengths though not of the same strengths, only one spare wire need be kept as replacement.

The lower centre-section has been modified from the original Simmonds Spartan, as the rear wing-root joint is now at the same distance from the fuselage as the front one, which has made necessary the fitting of a small strut from the rear wing-root to the fuselage. This projection, which has a stiff covering, makes a platform for getting in and out of the cockpits.

The wings are of wood as is the whole machine. For the private owner, especially those abroad, there is much to be said for wooden construction. Wood is easy to get and easy to repair or replace with available local talent and does not need the specialised knowledge of the metal-basher or tube-manipulator.

The two spars are [illegible] from solid spruce. The ribs are Warren girders of rectangular-section wood with small plywood gusset-plates. Box-ribs of similar construction are used for the compression members of the drag-bracing, with wires for the tension members. The nose is stiffened with plywood.

The rear wing-root fittings are hinges simply made by wrap-plates with lugs, through which long vertical bolts pass. The front fittings have two plates bolted to the web of each wing-spar. These slip past the ends of the front spar of the centre-section and are fastened thereto by long pins which pass through plates and spars. These pins extend to the leading-edge and are secured by clips, thus making their withdrawal for wing-folding quite a simple operation.

The ailerons which are all interchangeable have horn-balances. They can be slid into position from the end of the wing because of the type of hinge employed. This is a pin welded into an angle bolted to the spar. The wing at the tip and forward of the horn-balance is of special section and is streamlined to a thin trailing-edge in front of the leading-edge of the horn. This gives the end of the wings quite a characteristic appearance. The ailerons are built of wood on normal lines. The upper and lower ones are linked together with streamline push-pull rods.

The Slots.

The Arrow retains the neat device of having a detachable slot-unit, as in the original Simmonds Spartan. This unit can be ordered as an extra. The slot is of aerofoil section and not of the "plaster" type. So when the slot is closed the original aerofoil section of the wing is undisturbed.

The slot is mounted on short links of steel tube. There is a torque-tube which is not generally used on a light aeroplane, in fact the Arrow is the first machine of its class in which one has seen a torque-tube used. This tube is ingeniously mounted inside the slot itself and small plates link it to the mounting links. So well does this mechanism work that the slot can be opened on the ground from one end without any sign of twisting or lag in opening.

The Fuselage.

The fuselage is a rectangular structure with highly-cambered decking. The whole is of wood with spruce longerons and struts, which are panelled with plywood.

The Tail-Unit.

The tail-unit is of monoplane type. The rudder and elevators are horn-balanced. The elevators are interchangeable, but the spar is made continuous by using a wrap-plate which folds right round them and is bolted through. The angle of the cantilever-tailplane is adjustable on the ground. The unit is built of wood and covered with fabric.

The Undercarriage.

The undercarriage is of the divided type with a wide track and long travel, to avoid damaging longerons in heavy landings. The axles are hinged to the centre-line of the fuselage on its under surface. The radius-rods are led aft to fittings on the lower longerons. The rubber-in-compression shock-absorbers come up to a universal joint which is hinged to a heavy eyebolt which passes right through the front wing-root fitting. This bolt passes through a heavy tubular distance-piece. The whole structure is further stiffened by a compression member which is attached to the fuselage structure. Landing loads are thus taken on the enormously strong and specially stiffened front-spar of the centre-section. Any distortion which occurs happens to the eyebolt which can be knocked out and replaced if damaged or bent.

The tail-skid is sprung with rubber-cord and is linked with springs to the rudder so that it is steerable to help manœuvring on the ground. The skid itself is a rectangular hollow lever, of welded steel sheet with a replaceable steel wearing-shoe.

Wheel Brakes.

For the *Challenge de Tourisme Internationale*, Palmer Wheel Brakes were fitted on the Arrow and were most satisfactory. These brakes are now fitted as an extra. They only add 17 lbs. to the weight of the machine which seems an insignificant price to pay for their advantages.

These brakes are of the hydraulic type and the pressure is supplied by two small pumping cylinders. The plunger is depressed by a pedal with an ingenious cam arrangement whereby the leverage of the pedal is increased as the pressure inside the cylinder goes up. In the Arrow these pedals are arranged underneath the front seat and above the rudder-bar. They are also slightly inside the foot-rests so that to operate the brakes one just turns in one's toes, leaving the heels on the rudder-bar.

The oil in the system is contained in a small glass container fastened to the wall of the cockpit. When the pedals are in their normal position this container is open to the whole system, thus any decrease or increase of volume is looked after by the container.

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SPARTANS

2

SPARTAN ARROW (2-SEATER). The newest two-seater light aeroplane. The control right up to the moment of stall is a revelation. The ease with which it can be landed and taken off astonishes even experienced pilots. With pilot, passenger and fuel, the Spartan "Arrow" will land at the low speed of 35 m.p h., and the angle of climb is exceptionally steep
The ample strength is attested by the airworthiness certificate, which in normal category permits a weight, fully loaded, of 1,750 lbs.
Motor-car comfort is obtained in the roomy draught-proof cockpits, and the range of view is a real advance on anything previously obtained with this type of two-seater.

and

3

SPARTAN 3-SEATER. The Spartan three-seater is fitted with high-lift cambered type wings specially evolved to give it safe and pleasant flying qualities. These qualities are appreciated both by the experienced pilot and the novice.
The strength of the Spartan three-seater is evidenced by the high aerobatic certificate of airworthiness, which is granted for 1,680 lbs.
The machine is ruggedly constructed throughout and will give long and satisfactory service to the private owner, flying-club or taxi-plane operator.

Both machines are designed to take floats or skis.

Gipsy, Hermes or Cirrus engines can be fitted.

SPARTAN AIRCRAFT LTD., WESTON, SOUTHAMPTON

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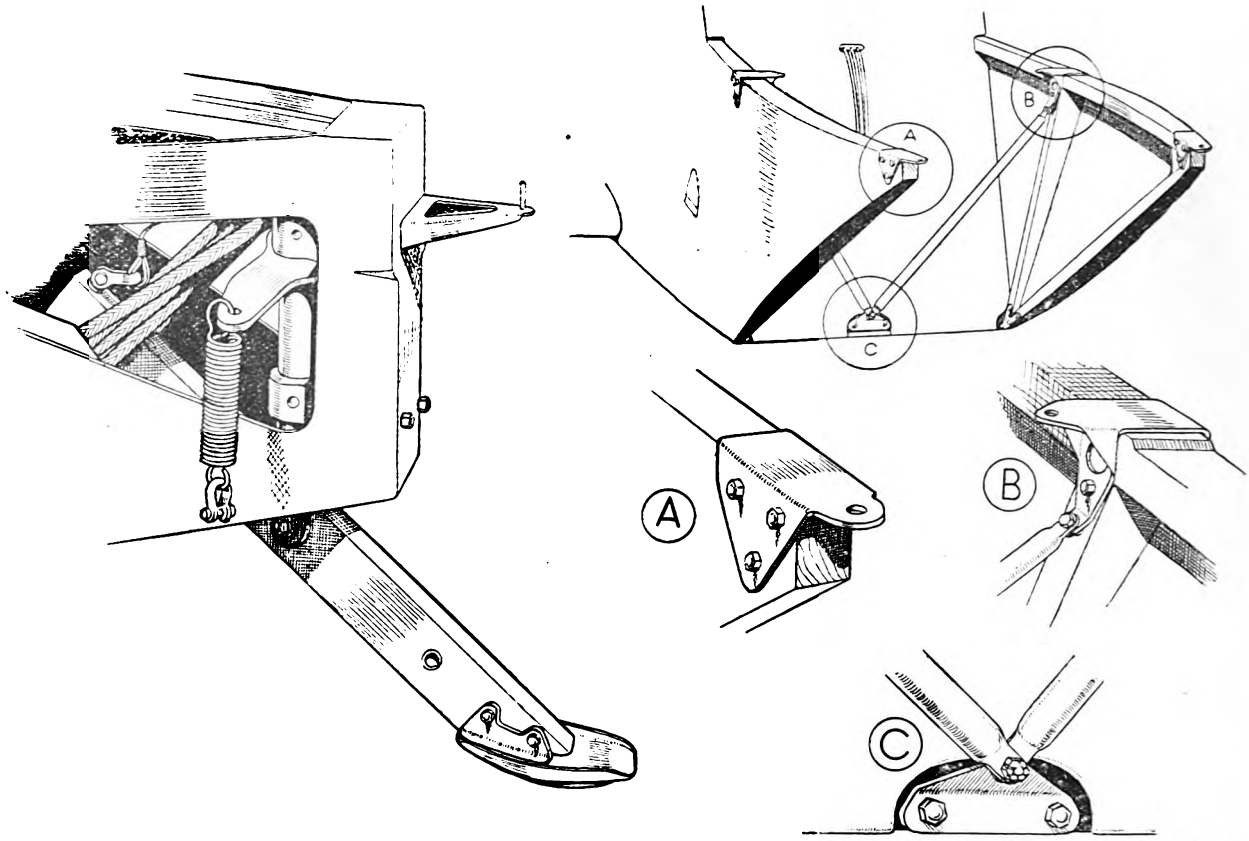

ARROW DETAILS.—On the left is the tail-skid and on the right the engine-mounting, with enlarged sketches of the principal fittings of the latter shown below.

When the pedals are depressed valves are closed which shut all the oil in the system.

The pressure is applied to the wheels very ingeniously by forcing the oil into a rubber tube on the surface of which are pads of braking material which are forced by the inflation of the tube against the surface of the brake drum.

The trials that beset the designer are illustrated in the story of the fitting of brakes to the Arrow. Mr. Simmonds conceived the brilliant scheme of taking the torque-reaction through cables. This was obviously the lightest way of doing the job. One just attaches a cable to the top of the brake-drum and anchors it to the rear wing-root fitting. A similar but much lighter cable is taken from the bottom of the brake-drum to prevent the drum from spinning round when the brake is taken off. This all seems quite straightforward.

When the problem of how many times the weight of the machine had to be absorbed by the system had been settled, the question of safety factors was discussed and here the joke arises. The Air Ministry as guardian of our aerial safety insisted that, if the brakes burst, the undercarriage must also collapse. Their fiat was that the tension cables must be as strong as the compression legs as the radius rods become in this system of torque-reaction.

Why should one have to sit down if the brakes burst, why should one not roll brakelessly across the aerodrome? All machines without brakes have to.

Power Plant.

The Arrow can be supplied with the Gipsy II, the Cirrus-Hermes, Gipsy I or Cirrus III. These engines are mounted on wooden bearers, the strength of which has been amply demonstrated by the experience of the firm's pilot who had an airscrew burst which so unbalanced the engine that it fell out. When the machine got down and was examined, these wooden engine bearers were quite intact. The main fittings were not even strained or distorted. The feet on the crank-case of the engine had sheared and let the engine fall through the nose of the fuselage. Those who disbelieve the yarn can go and look at the bearers themselves.

The 22-gallon fuel-tank is entirely within the centre-section and feeds to the engine by gravity. The exhaust-pipe is led forwards and downwards outside the cowling.

An instance of Spartan forethought is the provision of a tool locker in the cowling or rather decking aft of the engine, in which a sufficient variety of useful gadgets may be carried.

The accommodation is good. The high decking makes a comfortable back-rest. The generous doors make getting in and out easy. There is a large locker which has an extension for golf-sticks and guns. There is a removable panel so that one may inspect the whole of the rear portion of the fuselage.

The Controls.

The controls are of the normal type. The rudder bars have adjustable foot-rests and the wires run straight to the rudder. The elevator controls are spring-loaded and can be adjusted by a lever and quadrant on the side of the cockpit. This lever adjusts the spring-tension on the torque-tube at the end of which is the lever for the elevator wires.

The aileron controls run with push-pull rods to levers so pivoted that the centres of the joint with the rods comes on the hinge-line of the wing. Thus when the wing is swung nothing is put out of adjustment. From the lever twin wires run to another lever on the front spar whence a rod goes to the lower aileron.

Specification.

Dimensions.—Span 30 ft. 7 in. (9.322 m.), Length 25 ft. (7.62 m.), Height 9 ft. 6 in. (2.896 m.), Width folded 9 ft. 5 in. (2.870 m.), Wing area 251 sq. ft. (23.3 sq. m.).

Weights and Loadings.—(Gipsy II): Weight empty 965 lbs. (438 kgs.), Fuel and oil 192 lbs. (87 kgs.), Useful load 593 lbs. (269 kgs.), Weight loaded 1,750 lbs. (795 kgs.), Wing loading 6.98 lbs./sq. ft. (34 kgs./sq. m.), Power loading 14.58 lbs./h.p. (6.6 kgs./h.p.).

Weights and Loadings.—(Hermes): Weight empty 975 lbs. (442 kgs.), Fuel and oil 192 lbs. (87 kgs.), Useful load 583 lbs. (264 kgs.), Weight loaded 1,750 lbs. (795 kgs.), Wing loading 6.98 lbs./sq. ft. (34 kgs./sq. m.), Power loading 15.9 lbs./h.p. (7.2 kgs./h.p.).

Weights and Loadings.—(Gipsy I): Weight empty 950 lbs. (431 kgs.), Fuel and oil 192 lbs. (87 kgs.), Useful load 608 lbs. (276 kgs.), Weight loaded 1,750 lbs. (795 kgs.), Wing loading 6.98 lbs./sq. ft. (34 kgs./sq. m.), Power loading 17.5 lbs./h.p. (7.9 kgs./h.p.).

Performance.—(Gipsy II): Max. speed 103-105 m.p.h. (166-169 km./hr.), Cruising speed 85-90 m.p.h. (137-195 km./hr.), Stalling speed 41 m.p.h. (66 km./hr.), Rate of climb 700 ft./min. (214 m./min.), Time to 5,000 ft. (1,524 m.) 9 min., Range 264 miles (425 km.).

Performance.—(Hermes): Max. speed 101-103 m.p.h. (164-166 km./hr.), Cruising speed 82-85 m.p.h. (132-137 km./hr.), Stalling speed 41 m.p.h. (66 km./hr.), Rate of climb 630 ft./min. (192 m./min.), Time to 5,000 ft. (1,524 m.) 11 min., Range 302 miles (486 km.).

Performance.—(Gipsy I): Max. speed 98-100 m.p.h. (158-161 km./hr.), Cruising speed 80-83 m.p.h. (129-134 km./hr.), Stalling speed 41 m.p.h. (66 km./hr.), Rate of climb 530 ft./min. (162 m./min.), Time to 5,000 ft. (1,524 m.) 13 min., Range 330 miles (531 km.).

For all these engines the Arrow has an Aerobatic C. of A. for a weight of 1,560 lbs. (708 kgs.).

A FIREFLY AT LYMPNE.

On Aug. 30 the Cinque Ports Club were treated to a fine exhibition of high-speed aerobatics by Mr. C. S. Staniland in a Fairey Firefly (Rolls-Royce F.XI super-charged). The Firefly is one of the latest intercepter fighters, and is capable of more than 200 m.p.h. Mr. Staniland was formerly a member of the High Speed Flight from which the Schneider Trophy pilots were picked, and his handling of the Firefly was delightful to watch.

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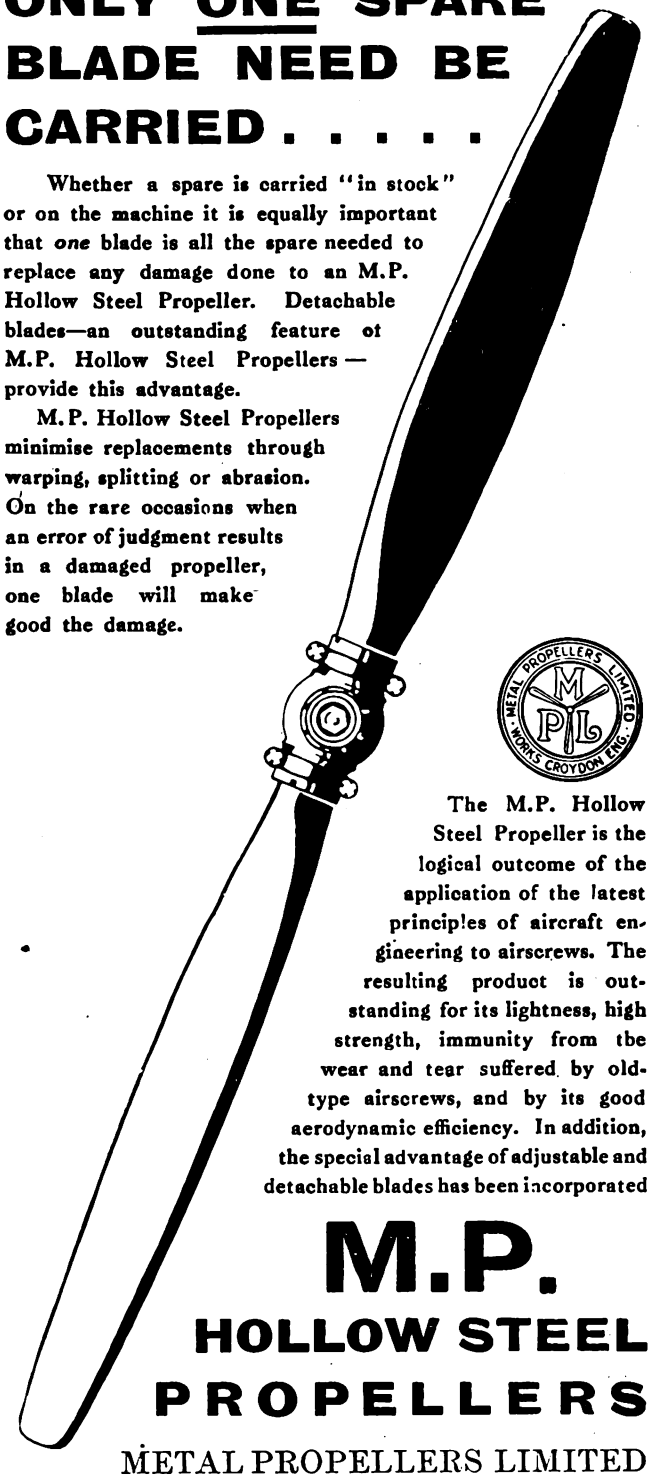

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COMMERCIAL AERONAUTICS.

THE K.L.M. STRIKE.

On Aug. 29 the seventeen pilots of the K.L.M. struck. They allege that the conditions and arrangements made for them on the shortly-to-be-opened Netherlands—East Indies air service are inadequate. All the pilots belong to the Netherlands Union of Air-Traffic Pilots. This Union has long been trying to negotiate with the K.L.M. company, but the firm refuses to recognise the Union.

The pilots declare that their pay is inadequate, that they have no contracts, that their extra "flying-pay" is very much inferior to that given in other countries, and that their insurance for the East Indies route is the same as that for the ordinary European routes. In addition, they declare that the conditions of the East Indies route are bad. Beyond Budapest there are no weather reports and wireless communication is only in the experimental stage. The landing grounds are badly equipped, the feeding is poor, and there are no proper sanitary arrangements. In spite of these dangers to health the amount of insurance is small, nothing is provided for illness, and there is no pension in the event of permanent disablement.

The Union wished to discuss these subjects, but the K.L.M. refused. Pilots Van Dyk and Wiertma, who were to make the first flight to the East Indies on Sept. 25, were informed that if they refused to go they would be dismissed as from Oct. 1. After conferring with the other pilots they told the company that they would not go on the existing terms, whereupon they were given notice to leave. All the other pilots then struck, and they have all been dismissed.

The Union has issued a statement to the effect that the pilots feel that they must make a stand for fairer recognition of their services in building up the high reputation which Netherlands Civil Aviation enjoys.

Mr. Plesman, Manager of the K.L.M., in an interview with the Press, says that Civil Aviation does not yet pay, and as the K.L.M. company is partly dependent on a Government subsidy it cannot be so generous as it would like to its pilots.

The average earnings per month of all pilots so far this year was 634 florins (£63), but the pilots now demand that they should be paid by the kilometre instead of by the flying hour, as the average speed has increased from 134 to 150 km.p.h.

On the East Indies service, he declares, that the European pay is increased by 50 per cent., added to which flying pay is allowed at 5 florins per hour on a 200-hour flight basis, plus 18 florins per day for general expenses. Pilots also receive 400 florins for first equipment for the East Indies service and 40 florins for each subsequent flight.

The Government insurance secures 1,000 florins a year for the widow of every pilot killed in the service besides a lump sum of 10,000 florins provided by the K.L.M. company.

The management of the company regrets that the East Indies service receives a serious set-back by the strike, but as there is only one civil company in Holland there can be no question of replacing pilots or forcing a temporary service during the strike.

The pilots in the meantime reserve their reply to Mr. Plesman, and say that there are many inaccuracies in Mr. Plesman's Press interview. In addition, they do not think that the question is one to be threshed out in the newspapers.

They await an invitation to confer with the company and are quite willing to accept the intervention of a Government arbitrator.—H. E. N. C.

BOEINGS IN CANADA.

Boeing Aircraft of Canada Ltd., of Vancouver, B.C., an offshoot of the Boeing Airplane Co., of Seattle, Wash., U.S.A., has registered the trade name "Thunderbird" for all Boeing aircraft built in Canada.

The Boeing 40-B4 mail and passenger biplane is also being redesignated the 40-H4 in Canada. The first machine of this type has recently been completed in the Canadian factory and several changes have been made in this model to adopt it to Canadian conditions.

Western Canada Airways are using several Boeing mail planes on its Prairie provinces mail routes.

WHOLESALE ADVERTISING.—Selfridge's Window, advertising Miss Johnson, The Moth, The Gipsy engine, Arens Controls, Armour Wind Indicators, K.L.G. Plugs, Husun Compasses, "The Daily Sketch," "The Sunday Graphic," and "The Aeroplane."

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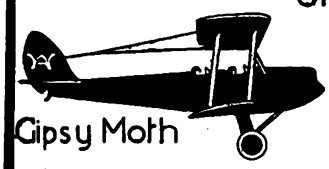
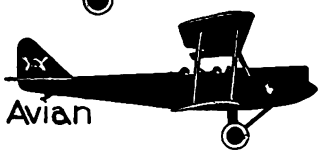


Gipsy Moth



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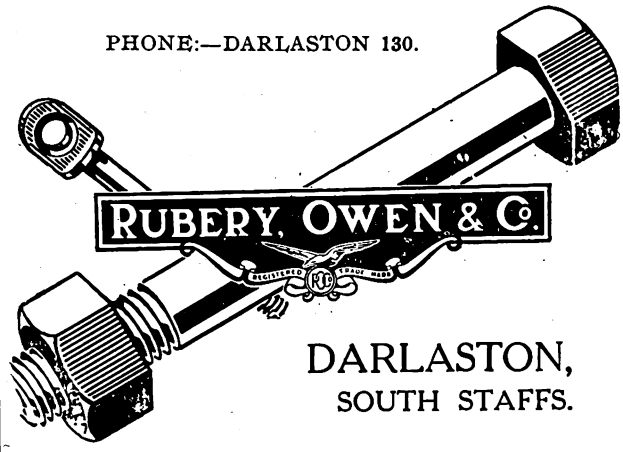

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A DESOUTTER FOR HUNGARY.—A Desoutter Mk. II monoplane (D.H. Gipsy III engine), which has been sold to Count J. de Wenckheim by University Motors Ltd., of 7, Hartford Street, W.1.

SIGNS OF THE TIMES.

There is no sign more welcome in the Aviation Industry than the interest now being taken by the bigger car selling organisations in the selling of aircraft. Auto-Auctions Ltd. are already well-known as agents for the Bluebird in the same way as Henly's Ltd. are agents for the Avro Avian. Another big organisation which started selling aircraft last year was University Motors Ltd.

On Aug. 25 Count J. de Wenckheim, a Hungarian nobleman, took delivery of a Mk. II Desoutter (Gipsy III engine). The Count and his new machine were flown away by the Count's Hungarian pilot, Mr. Stephen Dobos, who has had a great deal of experience and has renewed his licence every year since 1911. During the War 1914-18 he was a test pilot.

University Motors Ltd. are to be congratulated on the success of their latest deal, especially as they have sold a machine which will be sure to attract attention to itself and so prove a useful ambassador in Central Europe.

A BOOK FOR TOOL ROOM AND MACHINE SHOP.

There are so many steels nowadays that people whose job it is to use them and work with them have a certain amount of difficulty in knowing which is which, and for what specific purpose any particular steel is best suited. John Brown and Co. Ltd., the famous firm of steel-makers and ship-builders, have just issued the third edition of their book "Alloy and Tool Steels." This book describes and tells one how to get the best out of all the steels in every-day use and new steels of definite application made by the firm.

The book contains as well a very useful colour chart for tempering, which people in the tool room would do well to acquire. Tempering by colour is common practice, and those who follow it will do well to have a reference in times of argument.

The end of the book is devoted to conversion tables and tables which give the weights of square, round, octagonal and hexagonal steel bar. Such tables are always useful.

There is a contribution to the vexed question of what are the best ways of grinding high-speed steel for tools. There is also an interesting note on judging the hardness of a tool by rubbing it with a file. The note says that in High Speed Steels and particularly three brands listed in the book, the property which is developed on hardening is the resistance to abrasion at high temperatures, and this has little relation to file or Brinnell hardness at ordinary temperatures.

No doubt a large proportion of the multitudinous users of John Brown's steels in the Aircraft Industry have already got copies of this book. Those who have not should write, mentioning The Aeroplane, to the Publicity Department, John Brown and Co. Ltd., Atlas Works, Sheffield.

CHEAP RUNNING.

Some informative figures have just been given us by the De Havilland Aircraft Co. Ltd. about the fuel consumption of the Gipsy III inverted engine on the most recent of the long flights which Mr. C. D. Barnard has been making on the Puss-Moth owned by Arens Controls Ltd. This machine, its flights, and the manner in which Arens Controls have been used to replace the normal control system have all been fully described in The Aeroplane.

On the last trip to Tangier and back Mr. Barnard reports that the Puss-Moth gave not a moment's anxiety. The Gipsy III engine ran smoothly at 2,000 r.p.m. throughout the journey and the resultant cruising speed was 110 m.p.h. The petrol consumption worked out at exactly 20 miles per gallon and the total cost for fuel and oil was £11. The first class return fare by boat and rail to Tangier and back is £19 6s. 8d., and then the journey takes 68½ hours each way by the shortest route.

MANY INVENTIONS.

On Saturday last all flying on the extensive K.L.M. network of airlines all over Europe was stopped abruptly owing to a pilot's strike. As the K.L.M. management has successfully led the firm through the last ten years or so of Civil Aviation, during which there have perhaps been more lean years than fat ones, and when only determination, enterprise and very skilful leadership could have won through, and as the K.L.M. pilots are world-renowned as extremely levelheaded and reliable air-line pilots, it is a thousand pities this internal strife should have come to break the steady progress of a firm which has operated with conspicuous success for so long a period.

Meanwhile consternation has doubtless spread among those residents near Croydon Aerodrome and upon the Croydon-Lympne route who, eschewing Greenwich Mean Time as being only moderately accurate, have set their watches and clocks by K.L.M. service machines for the last decade or so. These miserable folk are probably reduced to such shifts as blowing the seed off dandelions, consulting hour-glasses, and mournfully measuring the shadows of tall pubs at noon and working out the result with a notched stick or slide-rule, in order to find out what o'clock it is.

Some, it is said, pin their faith entirely to the bit of dried seaweed hung in the porch and consequently are found confidently devouring eggs and bacon for breakfast at 4.30 p.m. It is even rumoured that an old gentleman at Edenbridge has placed a stone sundial in a handcart surrounded by an herbaceous border and a small lawn and that he has the whole thing propelled after him by a perspiring footman wherever he goes. Admirably as this invention is adapted for day work it is supposed that the old gentleman is about three weeks out in his calculations

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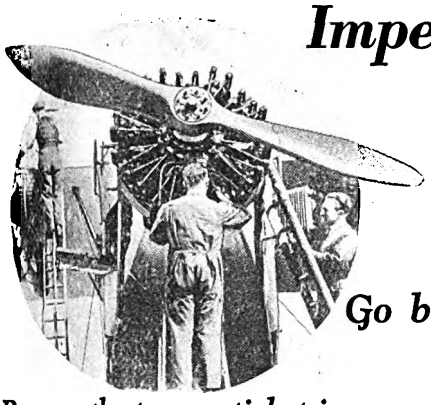

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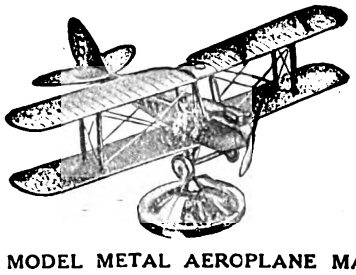

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owing to his habit of consulting the sundial by the wan light of a lucifer match at night.

We are becoming so accustomed to welcoming Mr. Charles Barnard at Croydon after such wonderful return flights as those to Malta and Tangier, that if he continues in this heroic vein we shall begin to think no more of it than if he had come from Paris or Cologne. In this illusion Charles Barnard helps us by his cheery unconcern and his extreme modesty about the whole thing. He never looks worn out, or in any way resembles the long distance hero-pilot of fiction or the films, or indeed some of those we have come across in fact. He has a drink with us in the pilot's room like any Christian and then quietly pushes off home to bed in the Puss-Moth on these occasions. And all the time he is showing us what can be done with long-distance mail in a British machine.

Mr. Neville Stack had a stroke of bad luck recently when he left his machine unattended for a few minutes and some mechanic or other person or persons unknown, but presumably half-witted, started her up, and she went off at half-cock and tried to climb up a hangar wall. The unknown had melted into the landscape, as such folk do, long before anyone could lay hands on him. Stack, who has just completed a pretty extensive business tour of Europe, was by way of starting on another one, which, we understand, has only been quite temporarily delayed.

Mr. Waters, who not so long ago learned to fly with the late Col. Henderson at Croydon Aerodrome, has acquired an aerodrome next door to Gatwick racecourse, where he is running a highly successful joy-ride and air-taxi business. He also had a machine taxi away by itself the other day and try to do a trial gallop round the racecourse, but when he went after it with a halter and a basin of oats, hissing loudly through his teeth, it gave a coy neigh and followed him into the hangar at a brisk trot,—at least, so they say.

Not long ago an aeroplane coming in to land over Stafford Road with a wireless aerial left dangling neatly unshipped a telephone wire and did no other damage at all. A newspaper reporter rang up to know where the crash was, and when informed that there was none had a really wonderful brainwave for a story.—"Is the aerial," said he, "erected on top of the wing, or does it trail underneath?"

Evidently he remembered the local councillor who said that machines often flew so low over Stafford Road when landing that they passed *under* the overhead tram cables, and he hoped, quite obviously, that the machine was up to some trick of this sort with the ordinary common or back-garden wireless-mast towering above the top of the wing.—SPRY.

ANOTHER

3

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TWEEDLE-DUM AND TWEEDLE-DEE.

The following letter seems to explain itself:—

Sir,—We note that you published in your issue of Aug. 13 a letter from Mr. O. E. Simmonds in which that gentleman claims that his firm did most of the design work and constructed the car of our airship A.D.1.

In view of the fact that we have already received an inquiry from a business associate as to whether Mr. Simmond's statement is correct, we are writing to point out that Mr. Simmonds' firm were only required to produce detail drawings of the airship car, fittings, etc., to meet the requirements of loads, design conditions and specifications laid down by our own Designer, who personally supervised that portion of the work which was allotted to the firm in question. It is quite incorrect therefore for Mr. Simmonds to claim for his firm most of the design work for our ship. It is true, however, that the car was constructed by Simmonds Aircraft Ltd.

For the purpose of historical accuracy and in fairness to ourselves, we would ask you to publish this letter and trust that you will be able to comply with this request.

The Airship Development Co. Ltd. (Signed) R. H. SCHLOTEL, Director.

[The general idea in engineering circles of what constitutes "design and construction" seems to be the production of detail drawing to the requirements of loads, conditions and specifications laid down in a general way by the technical representative of the person, firm, or Government who is, or are, doing the buying, and the building of the finished article to those drawings. Which seems to be about all that Mr. Simmonds claimed and just what Mr. Schlotel says that the Spartan Company did. So where the difference comes in is rather difficult to see.—C. G. G.]

MR. PEMBERTON BILLING'S LATEST.

Below appears a copy of a cable from Mr. Pemberton Billing at Los Angeles, U.S.A., to Riley Cars Ltd., Coventry:

Have just completed timed non-stop run New York Los Angeles on my Riley Nine Brooklands Model. Covered 3,000 miles on first class roads and over 1,200 miles of rock-strewn mud tracks negotiating over 260 cities and towns, encountering cloud-burst in Rockies unprecedented heat waves with temperature rising to one hundred and thirty in shade in five days twenty hours thirteen minutes averaging a speed after deducting time lost through enforced delays occasioned by speed cops punctures enforced detours and misdirection of forty-one miles an hour. Car behaved magnificently and despite this gruelling experience completed this last hundred and thirty miles in hundred and twenty minutes. All here fascinated by its appearance and amazed by its performance.—PEMBERTON BILLING.

There are strong rumours that the Riley Co. are experimenting with a small, high-power, high-speed aero-engine. So this piece of news will be of interest, apart from the interest of a rather extraordinary feat by one of the most extraordinary pioneers of British Aviation.

NEW COMPANY.

GARRAWAY, BLACK AND COMPANY LTD.—Private company. Registered Aug. 27. Capital, £100 in £1 shares. Objects: To manufacture and deal in balloons, aeroplanes, hydroplanes and airships of all kinds, and all accessories thereof, etc. The directors are: Capt. The Earl Amherst, M.C., 1, Wilton Crescent, S.W.1. H. W. Garraway, 25, Alton Road, Croydon, Surrey. G. G. Black, 22, Edgars Court, Welwyn Garden City. Registered office: 14, Avenue Chambers, W.C.1.

PERSONAL NOTICES.

DEATH.

COLEBROOK.—On Aug. 29, at 41, Castlebar Park, W.13, Charles Llewellyn Gerald Colebrook, Aeronautical Correspondent of *The Times*, aged 45 years.

MARRIAGE.

EDNEY-HAYTER—BRADFORD.—On Aug. 23, at Sonning, Flg. Off. F. C. Edney-Hayter, youngest son of Mr. and Mrs. Edney-Hayter, Whitchurch, Hants, to Hylda Muriel, daughter of Mr. Henry Bradford, of Addington House, Reading.

BIRTH.

TROWER.—On Aug. 25, at St. Leonards-on-Sea, to Mary (*née* Gilman), the wife of Stephen H. G. Trower—a son.

THANKS.

Mr. and Mrs. C. G. Grey wish to thank most heartily their many friends who have sent good wishes and congratulations on the birth of their son. They will reply individually as time allows.

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All advertisements for this column should arrive at this office by first post Monday, to ensure insertion.
For the convenience of Advertisers replies can be received at the office of THE AEROPLANE, Cannon House, Pilgrim Street, London, E.C.4.
Special PREPAID Rate—18 words 4/6, 3d. per word after; 13 insertions, 18 words, 4/-; 26 insertions, 18 words, 3/6; 52 insertions, 18 words, 3/-, 2d. per word after. Situations Wanted ONLY—18 words 1/. Box No. 6d. extra.

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The Aircraft Operating Co. Ltd., 8, New Square, Lincoln's Inn, London (Holborn 8131), and Broken Hill, Northern Rhodesia; Cairo, Egypt; Rio de Janeiro, South America; Contractors to the Ordnance Survey. Laboratories and Subsidiary Companies for aerial photography in the British Isles, Aerofilms Ltd., Colindale Avenue, Hendon (Colindale 6183 and 6184).

AIRCRAFT FOR SALE.
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For Aircraft, Sales and Service. Ford Aerodrome, Yapton, Sussex. Littlehampton 419.

X Type Moth G-EBZH, C. of A. expires August 1931. Engine since complete overhaul, 10 hours. Split undercarriage. No slots or compass. Colour, orange.—Price £395.
Avian G-EBYO, 12 months C. of A. Engine top overhaul. Can be painted any colour. Compass and shoulder straps. Ready in one month.—Price £350.
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Brooklands School of Flying Ltd., Brooklands Aerodrome, Byfleet, Surrey.

Blackburn "Bluebird" side-by-side seating, all-metal construction. Price £595. Sole world's distributors. Auto-Auctions Limited, Burlington Gardens, Old Bond Street, London. Aerodrome: Heston.
Bluebird (wooden) Mark II Genet, ten hours since complete overhaul; C. of A. eleven months. Law, 40, Ovington Street, S.W.
Henlys for Avians. Come to Heston and inspect the latest Avians. Prices from £575. We have a few first-class second-hand machines available at very moderate prices. Henlys, Heston Aerodrome, Middlesex. 'Phone, Hayes 410.
National Flying Services Ltd. (See page 581). Quick deliveries of all types, new or second-hand. Unrivalled service.
Phillips and Powis Aircraft (Reading) Ltd.—Authorised Moth Agents. Early delivery of Puss-Moths. Unique hire-purchase terms offered.—Reading Aerodrome. Sonning 114.
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Air Taxis Ltd., Stag Lane Aerodrome, Edgware. 'Phone: Edgware 0849.
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National Flying Services Ltd. (See page 581.) Go by N.F.S. 1s. a mile; 1s. 6d. two passengers. 4s. six—eight passengers.

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Immediate cash for modern aircraft, crashes or engine. J. H. Bartlett, 58, Warren Street, W.1. Museum 7915.
Moths, with or without C. of A., or damaged. Also other types and engines. Box No. 5897, THE AEROPLANE, Cannon House, Pilgrim Street, E.C.4.
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Learn to Fly at the Midland Aero Club. Four tuition machines, two fully qualified expert instructors. No waiting. Particulars, Hon. Secretary, 22, Villa Road, Handsworth, Birmingham.
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National Flying Services. (See page 581.) Join N.F.S. Learn to fly. Fly when you wish. Write for booklet.
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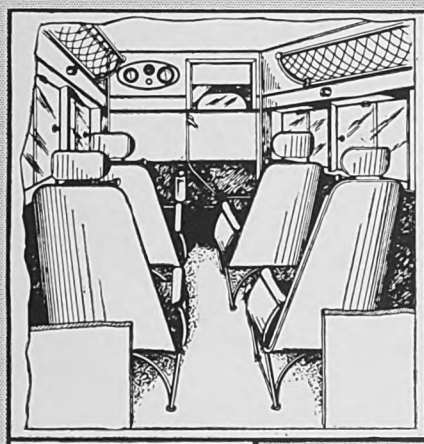

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The official report stated that "No trouble was experienced with the engine throughout the whole test," whilst on stripping-down after completion it was stated :— "The condition of the engine is extremely good."

Telegrams: "Aviation, Bristol." *Telephone: Bristol, 3906*

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Edited by C.G.Grey

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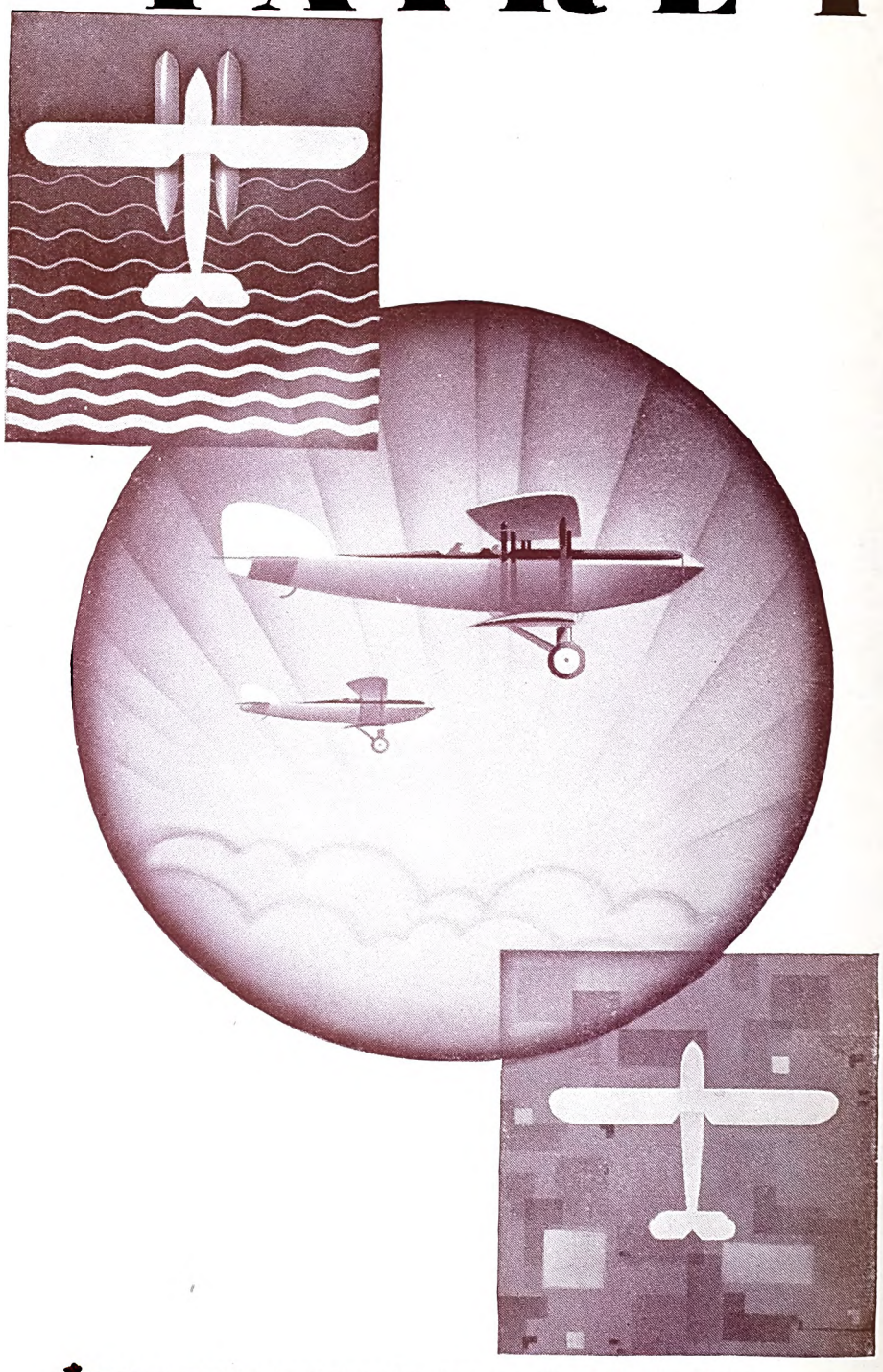

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SEPT. 10, 1930.

THE AEROPLANE

Incorporating

Aeronautical Engineering

VOL. XXXIX

No. 11.

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Accounts relating to Publishing and Advertising should be sent to the Offices of Aeronautics Ltd., Cannon House, Pilgrim Street, Ludgate Circus, E.C.4. Telephone: Central 5822.
Subscription Rates, post free: Home 3 months, 7s. 6d.; 6 months, 15s.; 12 months, 30s. Abroad, 3 months, 8s. 9d.; 6 months, 17s. 6d.; 12 months, 35s. Canada, 1 Year, $8. U.S.A., 1 Year, $8.50. Entered as second class matter at the New York (N.Y.) Post Office.

ON THE PRESENT AND FUTURE.

AN AIR MAIL EXPERIMENT.

On Friday a letter was brought to this office which had arrived in London the same morning bearing the Plymouth post-mark of 10.15 p.m. Sept. 4. It had left Lisbon somewhere about eight o'clock that morning in the Blackburn Iris flying-boat, and had been posted in Plymouth as soon as possible after the boat arrived. Actually the letter arrived at Plymouth about six o'clock in the evening.

Strictly speaking the carrying of such a letter may have been an infringement of some international postal law, but it did not infringe the English postal regulations because it came from Plymouth to London in the ordinary way by train.

The point of all this is that we have here a perfect example of what air mail work could be to-day if only everybody concerned would concentrate on it. And the performance of the flying-boat in flying non-stop from Plymouth to Lisbon on Aug. 25 and coming back non-stop on Sept. 4 proves quite definitely the soundness of the scheme set forth in THE AEROPLANE in March last for an air mail service to South America with Lisbon as the first stop outward and the last stop homeward.

Naturally a service straight across the Bay of Biscay would be held up by bad weather once in a while. But it would hardly be held up quite as often as the ordinary cross-Channel service is held up by fog or gales. And it would certainly not be delayed on the average as much as the ordinary mail-boats of the existing services to South America are delayed.

Moreover if anybody started now to organise such a mail service with the intention of getting it running regularly two years hence they would have far better prospects of success. In the first place, the Blackburn Iris is already an obsolete type. It is three or four years old, and there is little likelihood of any more Irises being built, because the type is already superseded by the Blackburn Nile, which is the civil version of the Service Sydney. Since the Nile and the Sydney appeared the four-engined Short Singapore Mark II has been put into the air with a still higher performance. And two years hence one or other of our great flying-boat firms will have produced something even in advance of that.

A CHANCE FOR THE MARINE MIND.

The various shipping firms which at present share between them the mail contracts to South America will, if they are wise, get together and consider very seriously the formation of an air mail line. There is every reason why they should have a Government subsidy. Not being on an Imperial route they would not be cutting into the rights of Imperial Airways Ltd. But even if they could not get a subsidy they would still find that the formation of an air mail company of their own would be a paying proposition a very few years hence.

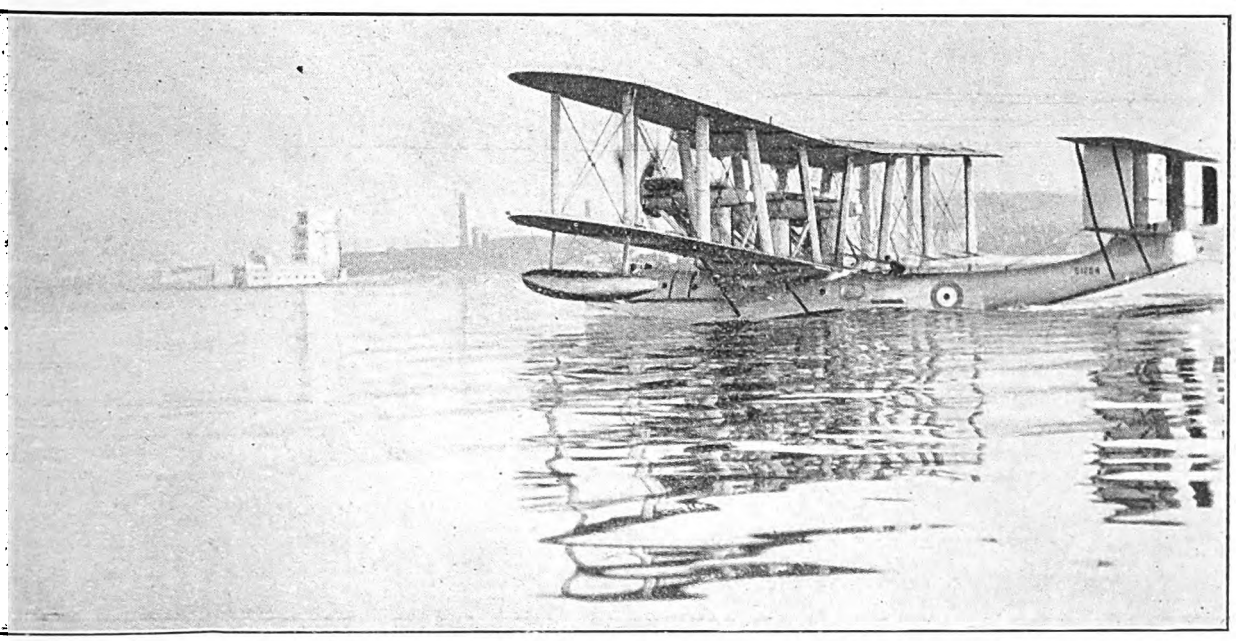
Everything points to a trade boom in South America. And nobody is more likely to profit by such a boom than we are in this country. There has been a revolution in Bolivia, there has been a revolution in Peru, and there has been a revolution in Argentina. These revolutions, when they happen without a serious civil war and consequent ruin of property, nearly always result in a wave of prosperity in the countries concerned. New brooms sweep clean, and new Governments always improve trade for somebody, if only by acquiring the wealth of those who have gone out of power and spending it.

These revolutions are evidently regarded much in this light by the most knowledgable people in this country, because those who are concerned with the forthcoming British Exhibition in Buenos Aires are not in the least anxious about the success of the Exhibition and announce quite definitely that there is no reason why the Prince of Wales should cancel his proposed visit to the Exhibition because of the revolution.

So when, as the combined result of the Exhibition and of the revolutions, a regular boom in trade starts in South

"I DO BUT WAIT A TIME AND FORTUNE'S CHANCE;
"OFT MANY THINGS DO HAPPEN IN ONE HOURE."

(Sir Thomas Wyatt—1557 A.D.)



PIONEERS.—The Blackburn Iris III (three Rolls-Royce Condor engines) of No. 209 (Flying-boat) Squadron, R.A.F., ready to take off from Lisbon. In the background is the Tower of Belem, from which Vasco da Gama started on the voyage which ended in the discovery of the sea route to India round the Cape of Good Hope. **These flights by the Iris non-stop from Plymouth to Lisbon and non-stop from Lisbon to Plymouth are the pioneer journeys on the great air trade-route to South America and Africa, and show the chances which fortune offers us.**

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America, there is the greatest need for us to speed-up as much as possible our communications with South America. And that speeding-up can best be done by starting right now to organise an air mail line to be in full operation three years hence.

American Competition.

The Americans are keenly alive to the possibilities of South America. The whole continent, except the southernmost tip, is encircled by American air lines. Pan-American Airways down the West coast and the New York, Rio, and Buenos Aires (N.Y.R.B.A.) line down the East coast, carry mails in a quarter the time that they used to take by boat. But American business men are not popular in South America and English business men are. So here is our opportunity if we will only take it.

Let us hope that the letter which came from Lisbon to Plymouth in something like eight hours on Sept. 4 may be merely the forerunner of a regular service at not less than that speed in the future.

ADVICE TO DESIGNERS.

No meeting held in this country has ever been more successful than that which inaugurated the aerodrome at Ratcliffe near Leicester which has been laid out as his own private affair by Mr. William Lindsay Everard, M.P. It was in fact so successful that at times the danger of having too many aeroplanes at one place at one time became obtrusive. There were well over a hundred aeroplanes there, and at times most of them seemed to be in the air at once. The only reason why there were no collisions was that nearly all the pilots were exceptionally skilful.

But the time is coming when we shall not be able to rely on exceptionally skilful pilots any more than on the road we can rely on exceptionally skilful drivers. Therefore something must be done about it, and the only people who can do anything about it are aircraft designers and constructors.

All the regulations in the World are not going to stop collisions. The only thing that can stop collisions is making aeroplanes so that people can see out of them properly. At the present moment the Puss-Moth gives better visibility than any other. It scores over the Mark II Desoutter by virtue of the view upwards and backwards, and this in turn gives the pilot a far better view than any other aeroplane except the Segrave Meteor,—which can hardly be classed as being on the market in the ordinary way.

But even these machines cannot possibly give such a view as will be demanded within a few years as a necessary qualification for a Certificate of Airworthiness. Allowing for the fact that all progress takes at least three times as long as it ought to do, merely because so few people are either intelligent or efficient, the prophecy can fairly safely be made that within five years no aeroplane will be certified as airworthy which does not give a clear view over half a sphere in front of the pilot and over at least a quarter of a sphere behind. Such a view is in fact possible for the pilot and front passenger of the Meteor at present, though the two passengers behind can see practically nothing except wing surface. And even that view can be very much improved.

More Necessities.

Other things which will be compulsory for an Airworthiness Certificate even before that period arrives are wheel-brakes and air-brakes. When we get to the point of having Hunterised aerodromes all over the country, as we look like having soon, the owners of the aerodromes are not going to allow their beautiful lawns to be cut up by tail-skids,—which are among the most barbarous relics of the pre-historic days of aviation. And even with tail-skids aeroplanes do not pull up in a reasonable distance after landing on these billiard-table surfaces.

Furthermore, with such beautiful surfaces from which to take off there is no need for aerodromes to be of such enormous size in future, and consequently aeroplanes will have to be built so that they can drop in over the surrounding trees if any, and can get off with a very short run. That means the proper development of slots.

There are those who still hold that there is no need for slots. They say that anything that can be done with slots can be done with proper wing sections and wing plans, either in the way of increasing lift or delaying stalling or preventing spinning in a completely stalled state. But Mr. Handley Page or Herr Lachmann will no doubt be pleased to prove that whatever such people do in the way of developing special wing forms can be improved still further by fitting slots to those special forms.

Real Worthiness.

At any rate one thing is certain, that five years hence nobody will be allowed to use aeroplanes which float and float before they touch the ground, and roll and roll after they have touched it. Such things are a danger to the community and ought not to be allowed. The tests for Airworthiness Certificates within the next few years will include getting down over obstacles and pulling up within a certain distance of them.

Considering how much is already known about the possibilities of designing aeroplanes with a view all round which will prevent collisions, and with the ability to land and get off properly, the average aeroplane of to-day, both Service and Civil, is ridiculous.

(Note:—These remarks are not addressed to the British Aircraft Industry, because, as a matter of fact, certain British aircraft come very much nearer fulfilling these qualifications than do any aircraft built abroad.)

MAKING THEM AIRMINDED.—The annual outing, beano, or wayzegoose, of the foremen of the Wolseley Motor Works (now under the control of Sir William Morris) travelled to Croydon and back in an Armstrong Whitworth Argosy (three Jaguars) piloted by Mr. O. P. Jones.

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World's land speed record. The late Sir Henry Segrave driving his Irving-Napier set up the World's land speed record of **231** m.p.h. NAPIER *engine*

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Can you imagine anybody in these days driving an open car with a speed of about 70 m.p.h. with back-wheel brakes only, and a weight distribution which gives it a tendency to skid, and trying to get through heavy traffic on wet roads? That is about what all aviators are doing to-day.

THE RATCLIFFE MEETING.

The official report of the Ratcliffe Meeting by Mr. F. D. Bradbrooke appears elsewhere in this issue, but I should like to say something on certain subjects which are rather off his beat.

At the very good lunch which Mr. Everard gave to his guests in his new aeroplane shed, my next-door neighbour, a Leicestershire enthusiast, made a remark which seems worth noting. He referred to Mr. Everard as "our prospective Air Minister," and said that the Leicester papers have hinted at such a possibility. With this idea in mind Mr. Everard becomes more than ever worth watching as a factor in British aviation. He is certainly a thorough good sportsman, well worthy of the Shires. And he is certainly enthusiastic about aviation or he would not have got our friend Hunter to build that beautiful aerodrome for him, nor would he have modified his loose-boxes so that aeroplanes can be stored in them.

He is deservedly popular in his own county and he is rapidly becoming popular with aviation people outside it. So if and when we have another Conservative Government he may become at any rate a Parliamentary Secretary or something of that sort, with ultimate promotion in view.

A Matter of Badges.

The Leicestershire Club deserves every congratulation on their part in the organisation of Mr. Everard's meeting. It was beautifully run, and there was one little point which other Clubs might well copy. The chief officials of the Club wore badges with their names and their offices clearly stamped thereon.

We have a silly habit in this country of being offended if people do not recognise us. But in these days of rapid transport all of us meet so many thousands of people that we simply cannot remember to hook up the right names to the faces we see. At Ratcliffe there was no mistaking Mr. Purt for Mr. Winn or contrariwise.

In America they have a very sensible way of serving out to all competitors, distinguished visitors, and so forth, neat little brooches in which there is a small plaque on which the wearer is asked to write his name in block letters. It saves an immense amount of trouble and many *faux pas* in conversation. And, curiously, it is done at Ascot.

Things that Happened.

The actual flying will be described by Mr. Bradbrooke but I must pay a special tribute to the amazingly perfect flying of the formation of 43 Squadron. Apparently the formation leader is a pilot who has for years been flying Bristol Fighters over the North-West Frontier of India, and the other two are quite junior Pilot Officers.

Compliments are also due to the three Club-trained members of the Leicestershire Club who put up a Moth formation and did combined aerobatics. They were extraordinarily good, but there were times when one felt unhappy about the inside man turning not more than forty or fifty feet from the ground on the verge of stalling with his engine throttled right down and looking as if he were going to clip the left aileron off the leader's machine with his airscrew.

A cheerful event in the middle of the afternoon was the arrival of Miss Spooner in the Southern Martlet (Hermes). The general public were not wildly enthusiastic,—for she had not been billed as an attraction by the local papers. But the way all the real aviation people dashed up to congratulate her as soon as she taxied into the Machine Park showed the high esteem in which she is held by the people who do the serious flying.

A good point about the meeting was the broadcasting by Mr. Brown. He has an unusually good voice and does the thing quite well. But he has one serious failing,—like the Fat Boy in Pickwick (if anybody reads that obsolete work in these days) he loves to make our flesh creep. And though he certainly did not say so in so many words, he distinctly conveyed the impression that the R.A.F. formation and the Club formation and the people who were crazy flying and flying aerobatically were flying under such dangerous conditions that one little slip of the hand or foot would result in a gory mass distributing itself in the midst of the public enclosures. Explaining to the general public what people are doing is excellent, and he did that excellently. But the general progress of aviation is not best served by telling the crowd how dangerous it is.

A Lucky Escape.

The safety of flying, or rather the difficulty of getting killed at times, was never better illustrated than it was when Saturday's show was all over and Mr. and Mrs. Kirby crashed in the field next to the aerodrome. They came out of the crash alive simply because the machine happened to do the "flick" part of its spin at exactly the right moment.

The last I saw of them was when the machine disappeared about 300 yards away behind a hedge in an absolutely vertical position. And it was not then spinning fast. Within the last ten feet it must have flicked its tail round and have hit with the left wingtip instead of on its nose. Even as it was the engine was pushed back into the front seat.

The crash looked like the result of sheer bad flying. Mr. Kirby, who is a member of the Hampshire Club and has been flying for quite a long time, took the machine off straight over the Club Enclosure and the Car Park at a height of between 50 and 70 feet. He can hardly be blamed for that, because everybody else had been doing it all the afternoon, but it is not a thing that I should do if I happened to be a pilot. For years I have been waiting to see an engine stop just like that at the wrong moment, and his engine did it.

He had in front of him a rather small grass field with a nice soft hedge at the far side. If he had put his nose down and held straight on he could have got onto the ground quite safely and he might or he might not have run into the hedge. But either he hesitated, hoping his engine would pick up, till the machine absolutely stalled and dropped its nose and spun, or he tried to turn back. I do not think he tried to turn, because obviously he was not high enough to get back over the sheds and enclosure into the aerodrome, so presumably it was an ordinary spin following a stall.

If the machine had had slots it would certainly not have

THE NIGHT MAIL IN THE ARCTIC.—A Bellanca seaplane belonging to Commercial Airways Ltd. afloat on the Arctic Ocean. This machine left Fort McMurray at 05.45 hrs. on June 26 and landed at Aklavik at 02.50 hrs. the following morning. It flew throughout in continuous daylight, made stops at all the intervening posts and delivered 1,000 lbs. of mail. On the right is a view of the Midnight Sun taken from the machine at 00.15 hrs. at the mouth of the Mackenzie River.

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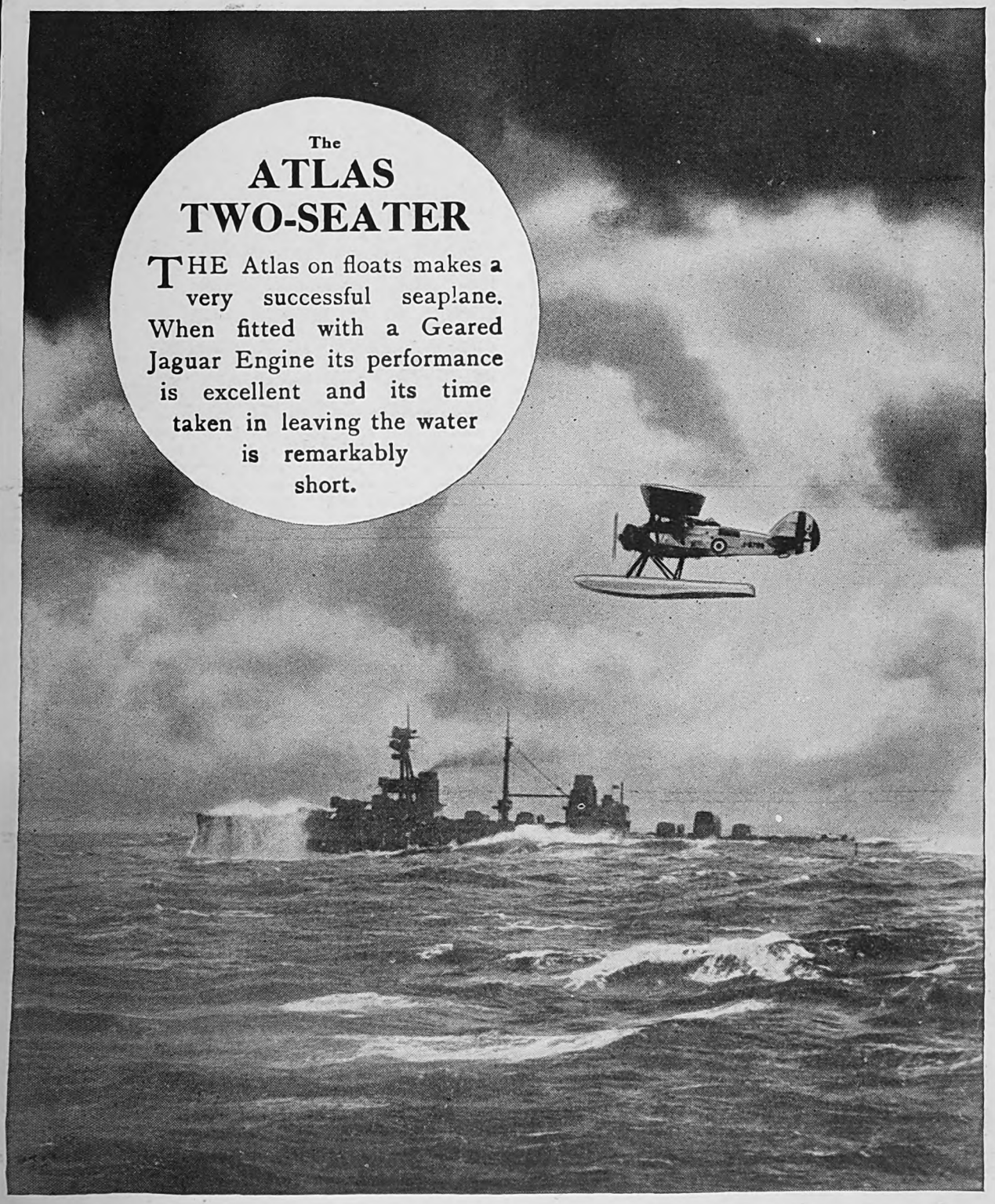

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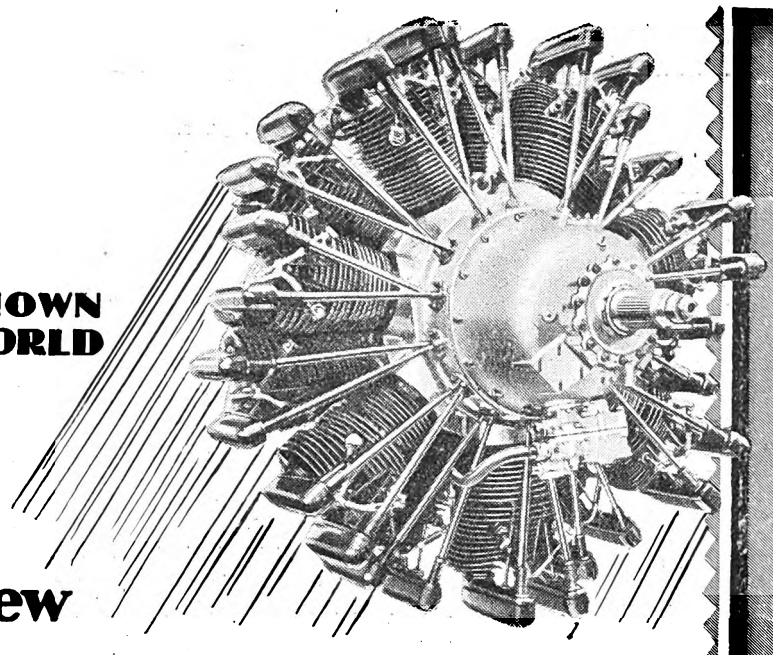

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THE ROYAL AIR FORCE.

The London Gazette.

Air Ministry, Sept. 2.

ROYAL AIR FORCE.

Group Capt. His Royal Highness Edward Albert Christian George Andrew Patrick David, Prince of Wales and Duke of Cornwall, K.G., K.T., K.P., G.C.S.I., G.C.M.G., G.C.I.E., G.C.V.O., G.B.E., M.C., Personal A.D.C., to The King, is promoted to the rank of Air Marshal (Sept. 1).

GENERAL DUTIES BRANCH.—Air Vice-Marshal H. C. T. Dowding, C.B., C.M.G., is appointed a Member of the Air Council as Air Member for Supply and Research (Sept. 1) (vice Air Marshal Sir John Frederick Andrews Higgins, K.C.B., K.B.E., D.S.O., A.F.C.).

Air Marshal Sir John Frederick Andrews Higgins, K.C.B., K.B.E., D.S.O., A.F.C., relinquishes his appointment as a Member of the Air Council on retirement from the Royal Air Force (Sept. 1).

Flg. Off. C. R. F. Wintringham (R.A.F.O.) is granted a perm. comn. as a Plt. Off. with effect from Aug. 21, 1930, and with seniority of Aug. 21, 1929.

The undermentioned are granted perm. comns. in the ranks stated (Sept. 1):—

FLT. LTS.—P. S. Blockey, L. Dalton-Morris.

FLG. OFFS.—B. H. Ashton, W. R. Baird, G. M. Buxton, W. G. Campbell, R. J. Carvell, W. G. Cheshire, F. G. H. Ewens, I. J. Fitch, F. S. Hodder, T. F. Moloney, N. C. Pleasance, J. H. Pool, H. J. G. E. Proud, G. H. Shaw, E. G. C. Stokes.

The undermentioned Plt. Offs. on probation are confirmed in rank (June 28):—N. Stratton.

Aug. 30.—K. M. Cass, H. R. Clay, L. A. Cubitt, G. G. Dixon, D. W. H. Heath, H. de M. Middleton, R. C. Noble, R. J. Parkhouse, A. C. Richardson, J. B. Tatnall.

Plt. Off. L. E. Jarman is promoted to the rank of Flg. Off. (Aug. 22).

The undermentioned are placed on the retired list at their own request (Sept. 1):—

Air Marshal Sir J. F. A. Higgins, K.C.B., K.B.E., D.S.O., A.F.C. Sq. Ldr. J. Kemper, M.B.E.

Flt. Lt. R. A. Seaton is transferred to the Reserve, Class A (Sept. 1). Flg. Off. J. N. Young is transferred to the Reserve, Class A (July 18). (Substituted for the notification in the *Gazette* of July 25.)

The S.S. comn. of Plt. Off. on probation J. N. Hepworth is terminated on cessation of duty (Sept. 2).

RESERVE OF AIR FORCE OFFICERS.

GENERAL DUTIES BRANCH.—A. J. Hewetson is granted a comn. in Class A.A. (ii) as a Plt. Off. on probation (Aug. 21).

Flg. Off. L. C. Burcher ceases to be employed with the Regular Air Force (Aug. 29).

Flg. Off. H. L. R. Gough is transferred from Class A to Class C (July 14).

Flg. Off. C. R. F. Wintringham relinquishes his comn. on appointment to a perm. comn. in the R.A.F. (Aug. 21).

Flg. Off. B. M. T. S. Leete, A.F.C., relinquishes his comn. on completion of service (Jan. 28).

MEDICAL BRANCH.—Flg. Off. F. G. Mogg, M.R.C.S., L.R.C.P., of the Special Reserve, is promoted to the rank of Flt. Lt. (May 1).

Appointments.

GENERAL DUTIES BRANCH.—Air Vice-Marshal H. C. T. Dowding, C.B., C.M.G., to Air Ministry, on appointment as Air Member for Supply and Research, 1/9.

Air Commodore The Hon. J. D. Boyle, C.B.E., D.S.O., to H.Q., Fighting Area, Uxbridge, to command, 1/9.

Group Captain R. E. C. Peirse, D.S.O., A.F.C., to Half-pay List, 8/7.

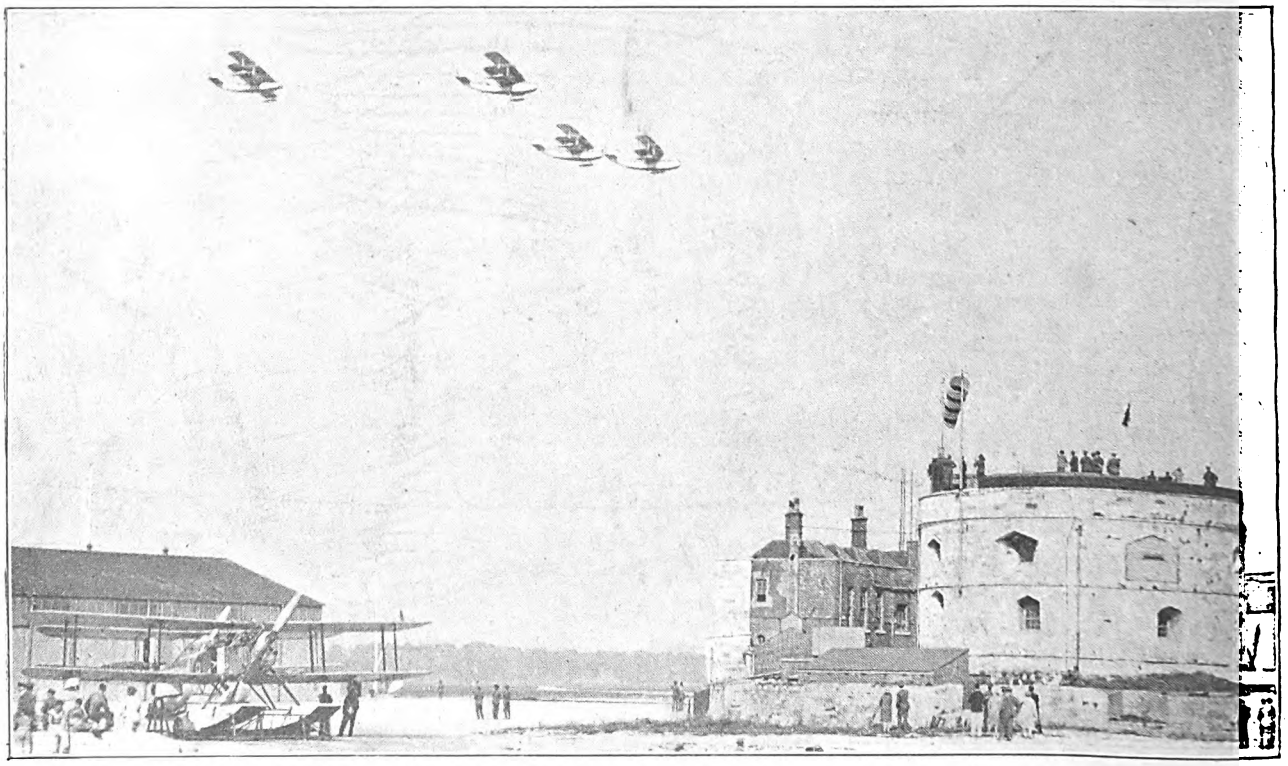
Squadron Leaders A. L. Gregory, M.B.E., M.C., to No. 99 Sqdn., Upper Heyford, 8/7. S. S. Benson, A.F.C., to No. 5 F.T.S., Sealand, 29/8. M. F. Browne, to Home Aircraft Depot, Henlow, 1/9. A. P. Maurice, D.F.C., to No. 21 Group H.Q., West Drayton, 7/8.

Flight Lieutenants C. E. V. Porter, to R.A.F. Depot, Uxbridge, 31/7. J. W. Baker, M.C., D.F.C., to No. 54 Sqdn., Hornchurch, 25/8. A. W. Franklyn, M.C., to R.A.F. Depot, Uxbridge, 22/8. M. C. Dick, A.F.C., to No. 3 F.T.S., Grantham, 1/9. J. S. Blomfield, to No. 3 F.T.S., Grantham, 1/9. O. W. de Putron, to No. 9 Sqdn., Manston, 11/8. M. Ballard, to R.A.F. Depot, Uxbridge, 25/7. C. K. Chandler, M.B.E., to H.Q., Coastal Area, 4/9. G. C. A. Armstrong, to No. 17 Sdqn., Upavon, 1/9. L. W. Jarvis, to A. and G. School, Eastchurch, 28/8. E. J. L. Hope, A.F.C., to M.A.E.E., Felixstowe, 1/9. H. A. Hamersley, M.C., to M.A.E.E., Felixstowe, 1/9. A. T. S. Leguen de Lacroix, to No. 10 Group H.Q., Lee-on-Solent, 1/9. R. Melbourne, to A.A.E.E., Martlesham Heath, 28/8. J. C. C. Slater, to No. 2 F.T.S., Digby, 1/9. L. Dalton-Morris, to M.A.E.E., Felixstowe, 1/9.

Flying Officers H. J. G. E. Proud, to A.A.E.E., Martlesham Heath, 1/9. R. D. Williams, to M.A.E.E., Felixstowe, 1/9. A. J. P. Groom, to R.A.F. Depot, Uxbridge, 1/9. J. C. Harcombe, to A. and G. School, Eastchurch, 21/8. J. V. Yonge, to Station Flight, Duxford, 1/9. C. H. R. Little, to A. and G. School, Eastchurch, 1/9. J. J. Owen, to No. 3 F.T.S., Grantham, 1/9. H. D. Spreckley, to A. and G. School, Eastchurch, 26/7. W. C. Cooper, to E. and W. School, Cranwell, 1/9. T. J. Arbuthnot, to E. and W. School, Cranwell, 1/9. B. D. Nicholas, to E. and W. School, Cranwell, 1/9. G. P. Chamberlain, to E. and W. School, Cranwell, 2/8.

Pilot Officers C. R. F. Wintringham, to No. 2 F.T.S., Digby, 21/8, on appointment to a perm. comn. E. H. Coleman, to Coast Defence Co-operation Flight, Eastchurch, 29/8. The following Pilot Officers are posted to the Units shown, on appointment to perm. comns. from the R.A.F. College, with effect from 26/7:—T. U. C. Shirley and W. R. Wills-Sandford, No. 4 Sqdn., S. Farnborough. R. D. Dashper and C. E. Littler, No. 13 Sqdn., Netheravon. A. G. Cleland and J. Whitehead, No. 16 Sqdn., Old Sarum. J. A. Chance, No. 26 Sqdn., Catterick. D. B. D. Field and J. S. Newcombe, No. 12 Sqdn., Andover. D. R. S. Bader and G. D. Stephenson, No. 23 Sqdn., Kenley. D. V. Angell, No. 29 Sqdn., North Weald. C. E. J. Baines, No. 32 Sqdn., Kenley. M. B. Edwards and H. B. Wrigley, No. 33 Sqdn., Eastchurch. D. G. Vaughan-Fowler, No. 41 Sqdn., Northolt. P. B. Coote, No. 43 Sqdn., Tangmere. J. W. C. More, No. 54 Sqdn., Hornchurch. J. P. Massey, No. 100 Sqdn., Bicester, and N. C. Walker, No. 207 Sqdn., Bircham Newton.

MEDICAL BRANCH.—Flying Officer M. T. O'Reilly, to Medical Training Depot, Halton, on appointment to a S.S. comn., 18/8.



BALTIC BOUND.—The four Supermarine Southampton Flying-boats (two Napier Lion engines) of No. 201 (Flying-boat) Squadron, R.A.F., leaving Calshot for their cruise in the Baltic.

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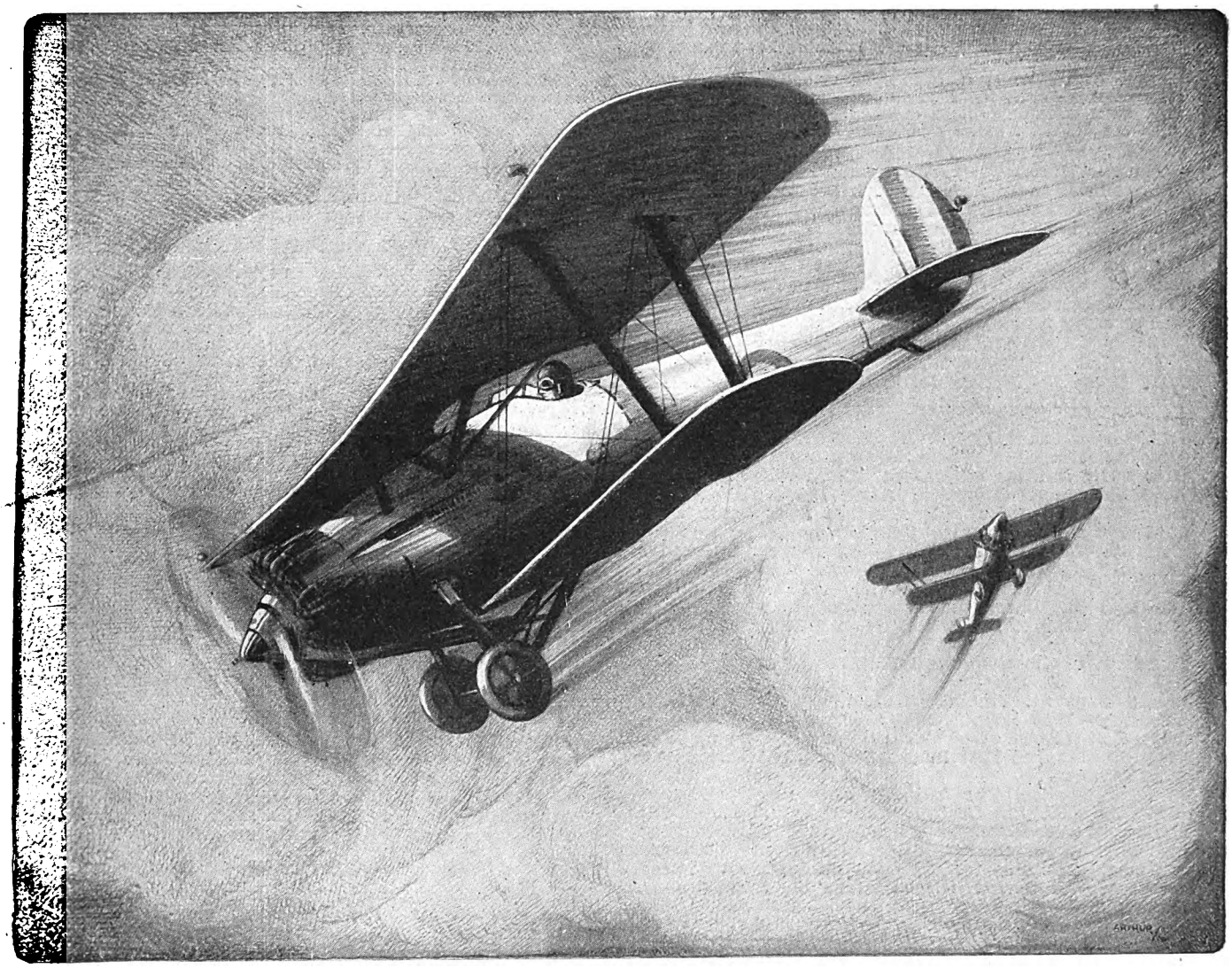

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DENTAL BRANCH.—Flying Officer F. B. Sumerling, to H.Q., R.A.F., Halton, 3/9.

STORES BRANCH.—Flight Lieutenant N. Dainty, to M.A.E.E., Felixstowe, 15/9.

Flying Officers W. A. G. Goldsworth, to Station H.Q., Hawkinge, 25/8. F. R. Lines, to No. 2 Stores (Ammunition) Depot, Altrincham, 10/9. A. H. E. Frost, to No. 2 (Ammunition) Depot, Altrincham, 1/9. V. G. Pool, to No. 2 Stores (Ammunition) Depot, Altrincham, 1/9.

A Fatal Accident.

The Air Ministry regrets to announce that as the result of a collision near Aqra, 'Iraq, between two Wapiti machines of No. 30 (Bomber) Squadron, Mosul, on Sept. 3, No. 155269, L-Ac. James Cooper, the passenger in one of the aircraft, was killed. The pilot, Flg. Off. Hugh Lindsay McCulloch, was not injured. Flg. Off. Charles Peter Hanlon, the pilot of the other machine, was slightly injured and his passenger, No. 358748 L-Ac. Thomas Walter Kent, was seriously injured.

The Gibraltar Exercise.

The details of the Royal Air Force Blackburn Iris Flying-Boat (three Rolls-Royce Condor engines) cruise to Lisbon, Gibraltar and back to Lisbon, and so to Plymouth, are now available.

The Iris, piloted by Flt. Lt. L. G. Maxton, A.F.C., left Mount Batten, Plymouth, at 07.10 hours on Aug. 25. At 08.50 hours she was off Ushant, 118 miles from Plymouth. At 14.20 hours she was off Barra Nova, 625 miles from Ushant. She had run into fog at 09.20 hours and at 16.15 hours she was unable to fix her position.

At 17.30 hours she was off Cape Carvoeiro and she reached Lisbon at 17.40 hours, 743 miles from Ushant.

The Iris left Lisbon at 11.25 hours on Aug. 28 and was off Cape St. Vincent at 12.55 hours. She passed Cape Trafalgar at 14.45 hours. and reached Gibraltar, 190 miles from Cape St. Vincent, at 15.20 hours. The distance from Plymouth to Gibraltar was 1,039 miles.

The Iris left Gibraltar at 13.55 hours on Sept. 2 and passed Cape St. Vincent at 15.00 hours and arrived at Lisbon at 17.50 hours.

She left Lisbon at 08.20 hours on Sept. 4 and was off Cape Finisterre at 11.55 hours. She reached Mount Batten at 18.15 hours.

The Afridi Invasion.

Air Marshal Sir Geoffrey Salmond, K.C.B., K.C.M.G., D.S.O., Air Officer Commanding, R.A.F. India, accompanied by Mr. E. B. Howell, Foreign Secretary to the Government of India, left Simla for Peshawar on Sept. 4 to attend a conference to review the situation on the North-West Frontier of India.

Foreign Officers with R.A.F. Units.

The following officers of Foreign nationality are attached to Units of the Royal Air Force. The dates are those of their attachment:—

Mr. Org (Estonian), Home Aircraft Depot, Henlow, 18.8.30 to 18.10.30.

S-M. Tsicaliotis (Greek Air Force), School of Army Co-operation, Sept. 1.

Lieut. Theologis and Lieut. Averoff (Greek Air Force), Squadron Armament Course, Sept. 2.

Sub-Lieut. Economou and Petty Officer Tsantidis (Greek Air Force), Central Flying School, Sept. 30.

Lieut. Kelaidis (Greek Air Force), Fighter and Bomber Squadrons, short attachments, September 1930.

Capt. Don R. Vega Fuentes (Mexican Air Service), Mexican Assistant Military Attaché in London, No. 5 Flying Training School, Sept. 30.

Flight Lieut. Jacobsson (Swedish Air Force), Central Flying School, Sept. 30.

Lieut. Rasananda and Lieut. Sucharitkul (Siamese Military Air Service), No. 5 Flying Training School, Sept. 30.

Long Service and Good Conduct.

Long Service and Good Conduct Medals have been awarded to the undermentioned airmen:—

314995 S-M.1. Pavitt, T. E. (19.6.30); 313268 S-M.1. Stone, C. H. (23.10.29); 1019 S-M.2. Beaumont, H. D. (19.2.30); 332353 S-M.2. Irish, A. H. (22.3.30); 122 S-M.2. Ware, R. W. (26.6.30); 314987 S-M.2. Williams, J. (11.5.30); 238686 F-S. Mill, M. F. G., D.F.M. (15.4.30); 315001 F-S. Smith, F. (26.6.30); 214323 F-S. Tapley, H. (26.8.21); 314408 F-S. Townsend, A. C. (11.4.30); 315059 F-S. Williams, A. G. (16.8.28); 338137 Sjt. Giles, T. F. (10.4.30); 348596 Sjt. Jones, G. H. P. (23.12.29); 314923 Sjt. Meadmore, J. B. (22.2.29); 336919 Cpl. East, A. J. (2.1.30).

The awards take effect from the dates in brackets.

Certificates have been awarded to the following airmen (ex-Naval Ratings).

238686 F-S. Mill, M. F. G., D.F.M.,—with effect from April 15, 1927; 248322 Sjt. Pearce, G.,—with effect from Mar. 10, 1929.

Special Assessments.

The following officer has been awarded the special assessment *Distinguished Pass* on completion of a course of *ab initio* flying training at the R.A.F. Training Base, Leuchars:

E. Ricketts, Mate, R.N., Flying Officer, R.A.F.

A notation has been made in this officer's official record.

Army Co-operation.

On Sept. 7 No. 16 (Army Co-operation) Squadron, under the command of Sq. Ldr. D. O. Mulholland, A.F.C., and No. 25 (Fighter) Sqadron, under the command of Sq. Ldr. R. S. Aitken, M.C., A.F.C., flew from their home stations to the Westland Company's aerodrome at Yeovil, whence they will co-operate in the Army manœuvres for a few days.

Unoccupied Service Aerodromes.

An Air Ministry Notice to Airmen states that Bicester aerodrome will be unoccupied from Sept. 7 to Oct. 5 inclusive and that Biggin Hill aerodrome will be unoccupied from Sept. 8 to Oct. 3 inclusive. During that period civil aircraft should land only in cases of emergency.

Flying over the danger area in the vicinity of the Chemical Warfare Station, Porton, near Salisbury, should be avoided.

OFFENSIVE ACTION.—A Fairey Flycatcher (385 h.p. Siddeley Jaguar engine) of the Fleet Air Arm in H.M.S. "Glorious" diving on and machine-gunning a platoon of the Queen's Royal Regiment at Malta. The demonstration was specially staged. A flight of Flycatchers was detailed to attack four platoons. All personnel fought with camera-guns.

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A LEGAL IDEALIST.

[*Air Power and the Cities.* J. M. Spaight, C.B.E., LL.D. ix 244 pp. Index. Longmans, Green and Co., 15s., and from The Aeroplane Book Department, Cannon House, Pilgrim Street, E.C.4.]

To Dr. Spaight belongs the distinction of being the first man and lawyer who has attempted to draft a code for aerial warfare. Before the War he had written an erudite book on the subject, and since the Armistice he has enriched the literature of aviation with books on the same theme. The volume under immediate review is, so he tells us, in the nature of a sequel to his earlier work, *Air Power and War Rights,* and he endeavours to determine in what manner it is possible to draft a code of laws governing warlike operations conducted by aircraft beyond and behind a purely military theatre.

His starting point is the modern practice of naval warfare, for he says that the menace of air power to inland cities from the air is essentially the same as that to which coastal cities have been exposed since steam and shell-fire revolutionised the technique of coastal attack. Explosives dropped from an aircraft and explosives hurled from a long grey barrel pointed skywards on a ship's deck many miles away equally fall out of the clouds. The radius of the menace has merely been extended.

He then proceeds to develop this thesis, and in a most thrilling chapter dealing with the history of coastal raids, shows how the Admiralty and the Navy have pursued a method of warfare which, when now suggested by the exponents of air power, they stigmatise as brutal.

The whole object of Dr. Spaight's book is to insist that bombardment from the air should be regulated by those rules which have been in force with respect to similar action from the sea, for our author very strongly emphasises his disbelief in what may be called "unrestricted" aerial warfare. He very carefully points out that, while our blood has been made to curdle by accounts of what will happen to us during the next war by reason of attack from the air, these sensational statements have been made by the uninformed civilian and not by the air officer.

Dr. Spaight holds, and in the reviewer's opinion, wisely, that attacks on non-military objects never pay, for mere brutality in war does not cow, but enrages, and so strengthens the spirit of the afflicted.

The author then proceeds to elaborate a series of rules for aerial bombardments, and in this he is admittedly stepping upon treacherous ground. A cynic once remarked that "the worst of a gentleman was that he always imagined that everybody else was a gentleman," and while the Royal Air Force would undoubtedly conform honestly to any rules that might be given to it for the conduct of air action, yet our opponents might remember Lord Fisher's warning that "moderation in war is imbecility."

The subject of this book is of such vast complexity, that it is difficult, in fact, impossible, to do justice to it in a review of ordinary length, and so the reviewer can but hope that his readers will buy the book and read it in detail. They will find their meal a somewhat tough one, and they may not be able to eat all its courses, but they will doubtless pay tribute, as the reviewer does, to the author's erudition, zeal, accuracy and idealism.—C. F. S-G.

SIMPLE AERODYNAMICS.

[*Simplified Aerodynamics.* By Alexander Klemin, Professor of Aeronautical Engineering. The Goodheart-Willcox Company Inc., Chicago. 5½ in. by 8 in. 324 pp. From The Aeroplane Book Department, Cannon House, Pilgrim Street, E.C.4.]

This is a book on the principles of aircraft design for students, pilots, aircraftsmen and others who wish to know the reason why, but who may not have the time or ability to study aircraft design. It is not a text book for the aeroplane designer.

The mathematics are elementary and an introductory chapter explains the principles of mechanics and trigonometry in a manner which will enable anyone, who has forgotten, whatever he may have learnt of these subjects at school, to revise the subjects in an hour or two.

The scope of the book is very comprehensive, starting with Standard Air and the methods of reducing performance to a standard for comparison, streamline flow, wind tunnel tests, lead up to the flow over an aerofoil and the "modern" Aerofoil Theory of Prandtl and Lanchester. Three typical aerofoil sections are used as examples, the Raf. 15, Clark Y, and Göttingen 387, and their suitability for different types of aeroplanes is discussed.

A large number of devices for overcoming the Stall were entered for the Guggenheim Safe Aircraft Competition, which was won by a Curtiss plane equipped with Handley Page slots. A number of these methods of gaining increased lift are described in chapter XVII, and the reason for the marked superiority of the automatic slot with flaps is explained. It is interesting to note that the majority of the devices described are simply means for increasing the lift of the wing by alteration of area or camber and not for giving control at the stall, this indicates that the essential nature of safety at low speeds had not been grasped by the majority of the entrants for the competition.

The method of producing performance curves and the deductions from these curves leads on to the "Elements of Airplane Mechanics" and their application to flying.

Stability is treated in a simple manner at considerable length, and is as helpful as any simple treatise can be, the step down from "Stability in Aviation" by G. H. Bryan, Sc.D., F.R.S., to simple algebra, of necessity leaves much unsaid.

This book will be of interest to readers of The Aeroplane, who, although they do not wish to become designers of aircraft, yet would be glad to have enough knowledge of the subject to enable them to appreciate the reason why. The pilot who can read and if necessary produce the performance curves of his aircraft is likely to get a better performance and more consistant results, while the works foreman who has a clear idea of the theory of the craft that he is building will have an added interest in his work.

In the preface the author says:—

> In this book, I have acted on the principle that there is no fundamental principle of aerodynamics which cannot be understood by anyone willing to take a little trouble, and provided such principles are clearly and simply set forth. At the same time, I have not avoided mathematical symbols, because mathematical symbols very often constitute an easier method of explanation or understanding than a roundabout verbal exposition. The book has been surprisingly difficult to write, much more so than an advanced text, but I have been encouraged by the hope that it would help the student in the most difficult stage, namely, the beginning.

This aim of the author to produce a really simple exposition of the principles of aerodynamics which may be understood by anyone who takes the trouble to study the book, without the necessity of having books of reference, has undoubtedly been fulfilled.

There are many people who wish to put forward inventions for the improvement of aircraft whether it be power-driven or gliders. These inventions may have points of value in them, but owing to the inventor's lack of knowledge of the principles of aircraft design, the inventions are put forward in a manner which is not acceptable to the manufacturers of aircraft. A study of this book will enable the inventor to put his invention into a directly useful form or else realise the difficulties of adapting it to actual aircraft and thereby save him the patent fees.

It is a book which can be recommended as an introduction to the study of aerodynamics and aircraft design, written by an author who is well known as eminently suited to the task.—L. H. F.

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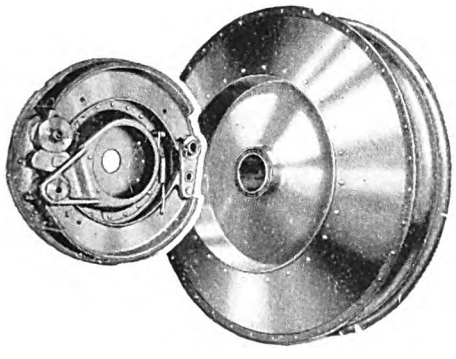

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POWER.

[*The Petrol Engine.* By the Staff of *The Motor* and its associated journals. 257 pages. 7½ ins. x 5 ins. Illustrations and index. Temple Press Ltd. Supplied by THE AEROPLANE Book Department, Cannon House, Pilgrim Street, E.C.4. 3s. 9d., post free.]

This book, which is the third edition, deals with the internal combustion engine and its accessories in the most comprehensive way possible within such small limits. The Deisel engine is touched upon, but not dealt with, as it is considered outside the range of purely petrol engines. The problem has evidently been to decide how much elementary theory to include at the expense of practical details and modern design later in the book.

From early history the handbook passes rapidly through first principles to details of mechanism, valves, pumps, ignition, carburetion and cooling. There is a chapter on engines for commercial vehicles in which about 26 types are illustrated. Motor-cycle and power-boat plants are thoroughly dealt with and the chapter on aircraft engines illustrates 22 types, all described accurately although necessarily briefly.

The introductory remarks to the aviation engines also give a very fair general idea of the situation, although one doubts whether it is correct to say that among air-cooled aero engines "the most successful type is the radial." It is certainly the commonest, but there are not many engines more definitely successful than the Cirrus or Gipsy models, or more powerful than the Rolls-Royce or Napier. The radial is more successful in higher powers mainly because no modern air-cooled engine of any other type has yet been developed to the point of success or failure.

The chapter on horse-power, its definition and measurement, is interesting and instructive. This is decidedly a valuable adjunct to the library of any student of petrol engines. The very elementary portions would require to be supplemented by practical demonstration, but the same might be said of any handbook. The illustrations, both drawings and half tones, are numerous and very good.—F. D. B.

A YEAR BOOK.

[*The Aircraft Year Book,* 1930.—Compiled, written and edited by the Aeronautical Chamber of Commerce of America. 647 pp., and fully illustrated. Obtainable from THE AEROPLANE Book Department, Cannon House, Pilgrim Street, London, E.C.4.]

The Aircraft Year Book was first published by the Aeronautical Chamber of Commerce of America in 1919. The latest or twelfth edition is a complete reference manual to American Aviation for 1929. Of the total of 647 pages, one chapter of 40 pages is devioted to World Aviation in 1929 and deals briefly with civil aviation activities under the headings of nations, dominions, colonies and dependencies in alphabetical order.

The remainder of the book is entirely American, and when it is remembered that 1929 was a "peak" year in American aviation, the 600 odd pages are taxed to the utmost to deal adequately with the developments and accomplishments of that year.

There are nineteen chapters, named as follows: I "Reflecting the Trend in Aviation," II "Aircraft Production and Operations," III "Air Transport Progress," IV "Aviation Radio," V "Aerial Service," VI "Aircraft Manufacturing," VII "Engine Manufacuring," VIII "Airship Development," IX "History-making Flights of 1929," X "Refuelling Endurance Flights," XI "Exploration by Air," XII "Military Aviation," XIII "Government Civil Aviation," XIV "Airports and Airways," XV "Private Flying," XVI "Aeronautical Legislation," XVII "Aeronautical Education," XVIII "World Aviation in 1929," and XIX "Trends in Design."

Thereafter follow Aircraft Design and Engine Design, sections which include 103 full-page dimensioned line drawings of aircraft and 40 drawings of aero-engines.

A chronology of the year and an appendix complete the book. The appendix provides authentic figures and directories of information on almost every subject connected with aviation.

The volume has been very carefully compiled and edited and is beautifully produced. There are over 200 illustrations, including the line drawings already mentioned and three maps of air routes in the United States, South America and Europe respectively.

As a complete reference to American Aviation the book stands alone. To the aeronautically-minded enthusiast it provides matter for much recreation but for the earnest seeker after knowledge on how our American cousins go about aviation it is an essential addition to the business and or private library.—L. B.

THE PITY OF IT.

[*The Seven Skies.* Harry F. Guggenheim. 216 pages, 31 illustrations. G. P. Putnam's Sons, The Knickerbocker Press. 10s. 6d.]

The present Emeritus Professor of Chemistry at Cambridge was once accused by some Scottish shepherds that he "was no a Scotsman." He replied that nevertheless he was born in Scotland. His relentless critics replied, "If a man is bor-r-rn in a stable, it no makes him a hor-r-rse." This story is apposite, for the publishers tell us that Mr. Guggenheim is American Ambassador to Cuba, and was at one time President of the Daniel Guggenheim Fund for the promotion of Aeronautics, founded by his father.

He may be an admirable Ambassador, and the most worthy of Presidents, but, if this his book is anything to go by, he knows, first, little about aeronautics, and secondly, nothing about writing good English. The publishers' wrapper tells us that the book makes "utterly delightful reading, aside from its factual value,"—so the writer of the wrapper knows very little more than does Mr. Guggenheim about writing English.

The book is a *compôte* (no other word seems to fit) of a number of articles which Mr. Guggenheim has been lucky enough to have had published in various American papers. It is a pity that they did not remain in their comparative obscurity, for the book adds nothing to our knowledge of aviation, either on its historical or technical side. The first part purports to give a potted history of aeronautics, but, like so many American books on the same subject, it only tells the half-truths, and, true to type, makes several mistakes in names. In dealing with the War 1914-21, the effort of the British Empire is dismissed in seven lines:—"The British contributed in 1914 eighty-two planes, mainly of French design. An English historian commenting on these early contributions to the Allied cause by the British says: 'It is on record that the work of providing spare parts might have been rather complicated but for the fact that there were none.'" This is followed by a eulogistic misstatement of facts concerning the aid America gave.

The rest of the book is devoted to some account of the development of Civil Aviation since the Armistice, and the uninformed might readily believe from this that development has taken place in the United States of America alone. The reviewer hates to be unkind, but really it is a very bad book, and one which the publishers would have been wiser to refuse.—S. F. S.-G.

FOR THE SCIENTIST.

[*Jahrbuch der Wissenschaftlichen Gesellschaft fur Luftfahrt e.V.* 1929, published by R. Oldenbourg Verlag, Munchen, Gluckstrasse 8, at 26 Marks. Obtainable from THE AEROPLANE Book Department, Cannon House, Pilgrim Street, E.C.2.]

This is the annual bulletin or report of the German Scientific Society for Air Transport, which appears to fulfil similar functions to our own Aeronautical Society, but unlike our Society the German issues its report yearly.

This is definitely a book to be got by those who can read German, for through it one has access to papers by authorities that would otherwise be difficult to obtain. This particular issue, after the lists of members and rules, publishes an account with a brief résumé of the lectures and papers that were given at the 18th Ordinary Meeting in Nov. 1929. The real meat for the foreign reader is to be found in the printed lectures which are illustrated and contain an account of the discussion which followed.

There are twenty of these papers, the first of which is Dr. Dornier's now classic lecture on the "Flying Ship Do.X." And there is a well-illustrated paper on the Development of the Junkers Heavy Oil Engine.

Like other countries Germany is paying much attention to radio beacons and radio direction-finding so there is a report from the Radio and Electrical Section of the German Experimental Establishment for Air Transport devoted to Radio beacons.

Herr Naatz contributes a paper on the new technique of rigid airship construction and Herr Rumpler has a technical discussion on the question of long-range flying machines with special reference to his twin-hull flying-boat.

Herr Kiwull elaborates his scheme for the co-operation of ships and aircraft by means of the wake from the ship. This scheme was described in THE AEROPLANE for Sept. 4, 1929.

As well as other interesting papers, this report contains information about the rivetting of thin sheets and the strength of metal panels. This is a subject to which our own N.P.L. has been paying attention.—T. J.

AERONAUTICAL BOOKS.

A revised catalogue of modern aeronautical publications is now available, and may be had post free on application to THE AEROPLANE Book Department, Cannon House, Pilgrim Street, E.C.4.

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PARIS—NEW YORK DIRECT.

At 23.12 hours (G.M.T.) on Sept. 2 MM. Costes and Bellonte landed at Curtiss Field, Long Island, N.Y., in their Breguet biplane "?," after having flown from Paris, a distance of 3,875 miles, in 37 hours 17 mins. non-stop.

They were accorded an enthusiastic welcome on arrival, and on the following day the welcome was made to include the traditional ride up Broadway, to the accompaniment of brass bands, cheering crowds and showers of "ticker-tape," to the City Hall and Mayor James Walker to have the welcome officially confirmed.

At 07.55 hours on Sept. 4 MM. Costes and Bellonte left Curtiss Field, New York, for Dallas, Texas, where they arrived at 17.30 hours on the same day. They thus win the Easterwood prize of £5,000 offered by Col. Easterwood, a Dallas millionaire, for a flight from Paris to Dallas,—Colonel Easterwood gets the usual Modock advertisement, and Dallas gets put on the Air Map, and everybody is pleased.

In addition to the above prize, various other grants, emoluments, fees and rights will bring them a fortune, freely stated in the Press to approach something like £400,000. But the people who find the money will find that they have backed a loser. Trans-Atlantic flying has "ceased to attract," and trans-Atlantic aviators soon cease to be news.

In France the first Paris-New York flight created unbounded enthusiasm. When the news of the arrival was broadcast to the vast crowds outside the newspaper offices and in the Place de la Concorde "men shouted and yelled, threw their hats in the air, sang the Marseillaise and employed every other conceivable outlet for their emotions,"—at least, so the papers said.

The French Government has promoted M. Costes to be Commander of the Legion of Honour, and M. Bellonte to an Officer of the same order.

The *Point d'Interrogation* is a Breguet biplane of the XIX type and is fitted with a 650 h.p. Hispano-Suiza engine. This particular machine has been used by M. Costes for the flights which beat the World's records for Distance in a Straight Line, Distance over a Closed Circuit, and Duration. The Atlantic flight, for which M. Costes has been preparing for some time, was made possible with the munificence of M. Francois Coty, the patron saint of artificial feminine beauty and proprietor of an independent newspaper.

Among the accessories used for the Atlantic flight were the following:—Dunlop 1,000 x 225 mm. aeroplane tyres, which withstood successfully the strains of a take-off with a loaded weight of over seven tons; Scintilla magnetos and K.L.G. plugs, both of which assured that the excellent Hispano-Suiza engine should maintain its already World-famous record for reliability. There is peculiar interest in the fact that amid all the enthusiasm for things French, the good all-British K.L.G. plug had to be imported to assure reliability. This has not been emphasised enough. That is the worst of being fitted and forgotten.

The petrol used was a new straight aviation spirit known as "Stanavo," which is obtainable all over the Continent, and for this flight was supplied by L'Economique S.A., 82, Avenue des Champs-Elysées, Paris, the French branch of the Standard Oil Co. of America, of which the Anglo-American Oil Co. Ltd. is the English branch.

Successful lubrication was assured by the use of "Castrol," the oil which has now become an essential for most big flights.

LONDON—STOCKHOLM NON-STOP.

At 06.30 hours on Sept. 4 Colonel the Master of Sempill left the Welsh Harp, Hendon, in a D.H. Puss Moth seaplane (D.H. Gipsy III engine) and flew non-stop to Stockholm, a distance of 1,040 miles in 12 hours.

The Master of Sempill, who is President of the Royal Aeronautical Society, is making a holiday tour of the coastlines of Sweden, Denmark and Norway and during his tour he intends to give flying demonstrations at Copenhagen, Malmö, Gothenburg, Oslo and elsewhere.

This flight must certainly be a record (if such a thing be recognised) for light-seaplanes,—both for distance in a straight line and for duration.

JAPANESE SUCCESSES.

A fine flight from Berlin to Tokyo was made by Mr. Seiji Yoshihara in a Junkers Junior (Armstrong Siddeley Genet) between Aug. 20 and 30. His route lay through Russia and Siberia and its total length was 6,800 miles. Mr. Yoshihara landed on the Yoyogi parade ground ten days after his start, and was welcomed by the Minister of Communications before about 200,000 people. Before receiving congratulations on descending from his machine he turned and bowed to it, according to Shinto custom,—which seems very right and proper.

Another success by a compatriot of Mr. Yoshihara's was the arrival at Tachikawa Aerodrome, Tokyo, on Aug. 31, of Zensaku Azuma in a Travel Air (Whirlwind). Mr. Azuma flew from California to the Atlantic coast, shipped his aeroplane to England, where it was reassembled at Hanworth, and then started out from Croydon to fly to Tokyo. It was his first visit home in 14 years.

POETIC PRAISE.

The *Popolo d'Italia* on Sept. 4 published a letter to the competitors in the *Giro Aereo* from Gabriele d'Annunzio. It is written in the most exalted style of the poet and urges all the airmen to audacity and the cult of joy. Even as he himself "dared the undarable" he commends the process to the present generation of aviators.

He sent to Herr Lusser, winner of the Italian Tour, a replica of the ring which he gave to Flt. Lt. Webster when he won the Schneider Trophy in Venice in 1927, and a copy of which he also sent to Flt. Lt. Waghorn who won it in 1929.

He called it a fine thing that the race of the hero Segrave should send so admirable a combatant as Miss Spooner into the skies of Italy. What impressed him most was the falseness of the rumours he had heard of her blunt manner. He was, on the contrary, so struck with her cheerful mien that he greeted her with a line of Shelley: "Hail to thee, blithe spirit." He judged from her laughter that she was unacquainted with that poet, but afterwards he significantly exhorted all airmen to cultivate gladness, so he evidently found Miss Spooner's outlook much to his taste.

MISS AMY JOHNSON.

On Sept. 4 *The Daily Mail* made the following announcement:—

Owing to the unsatisfactory state of her health, Miss Amy Johnson has been advised to abandon all public engagements and to take a prolonged rest, after her visit to Portsmouth to-day. It is, therefore, impossible for her to carry out the remainder of the United Kingdom tour arranged for her by *The Daily Mail*.

The public will be disappointed not to have the opportunity of seeing Miss Johnson, but will readily and sympathetically appreciate the reasons which have necessitated this change in her plans.

[Which doubtless explains her arriving in state, accompanied by the Director of Civil Aviation, in a Puss-Moth, at the opening of Mr. Lindsay Everard's new aerodrome at Ratcliffe, near Leicester, on Sept. 6,—and not being allowed to perform the vocal part of the opening ceremony as advertised. This might have strained either her constitution or her contract with *The Daily Mail*.—C. G. G.]

SPEEDING-UP ITALIAN MAILS.

On Sept. 7 an Italian seaplane, which had flown from Genoa to Gibraltar a few days earlier, left Gibraltar for Genoa with mails from the Lloyd-Sabaudo liner *Conte Biancamano*, which had previously arrived there from New York. This indicates an Italian effort to speed up Italo-American mails, and thereby increase trade.

The Lloyd-Sabaudo runs a fast steamship line from Genoa to New York and its ships make regular calls at Gibraltar.

M. MERMOZ DAMAGED.

M. Mermoz, the famous pilot of the Aéropostale line across the South Atlantic, was forced to jump with a parachute from an aeroplane which he was testing on Aug. 30. He landed with such force that one of his ribs was broken. M. Mermoz is now in hospital at Toulouse, and all will wish him a quick recovery so that he may resume his valuable air-mail work.

SILLY BILLY-ARDS.

On Aug. 18 a Curtiss Condor twin-engined commercial biplane, piloted by Mr. Frank Courtney, ascended from St. Louis with the cabin or the machine fitted out as a billiards saloon. When the machine was at a height of 4,000 ft., and making a speed of 100 m.p.h., a famous American billiard player made a break of 100 in 28½ seconds, and "astounded" the onlookers with several "stunt" balancing shots.

The juvenile ambition to become a billiard marker in a submarine is now likely to be superseded in the dreams of modern youth.

Nevertheless it seems that Frank Courtney has at last found a suitable use for his "magic hands."

THINGS WE MISS SEEING.

Seldom does *The Times* nod, but this from the issue of Sept. 8 is too good to miss:—

After the opening by Sir Sefton Brancker of Saturday, an aeroplane piloted by Captain Kirby crashed from a height of 50 ft.

We have seen Sir Sefton open many things,—from bazaars to bottles,—but we have never seen him open a Saturday. And anyhow Saturday was the night of the party, so he probably opened Sunday,—wide open.

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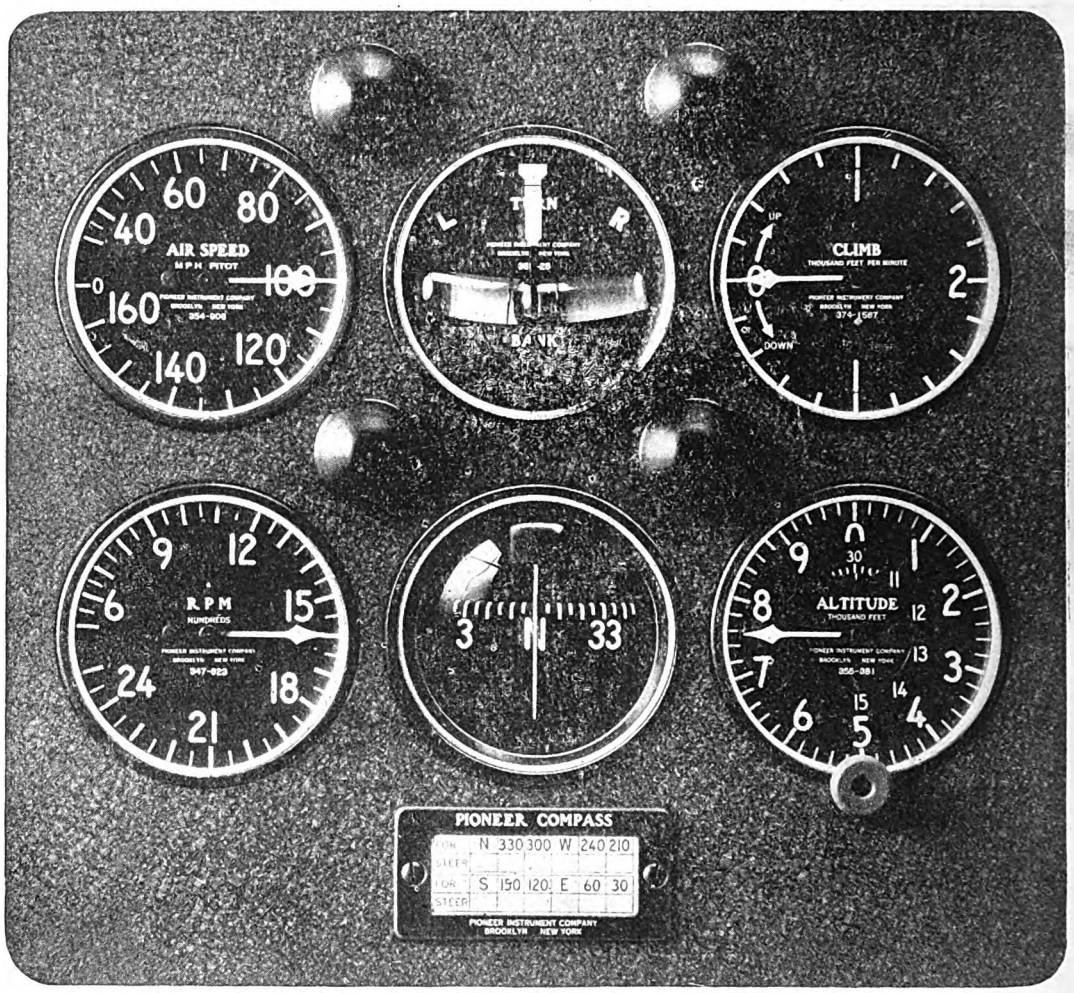

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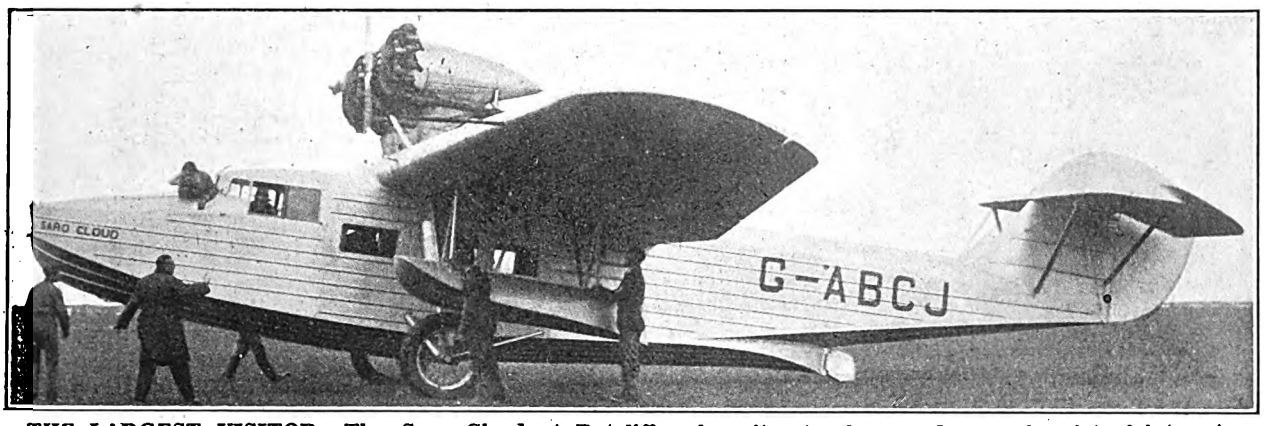
THE LIGHT AEROPLANE
AND THE FLYING CLUBS.

THE RATCLIFFE HOUSE-PARTY.



THE LARGEST VISITOR.—The Saro Cloud at Ratcliffe, where it not only caused a popular riot of interest but astonished the technical minds with its take-off.—(*"Aeroplane" photograph.*)

On Saturday 6 and 7 Mr. W. Lindsay Everard, M.P., formally opened his private aerodrome at Ratcliffe, near Leicester, with a house party which transcended the bounds of any ordinary house and overflowed into all the hostels of Leicester City. The pre-mediæval behaviour of some of the guests on Saturday night can only be explained as an unforeseen effect of the feudal lavishness which was displayed in their entertainment. Otherwise the atmosphere was that of the hunt breakfast extended to cover an aerodrome and its appurtenances, and pervaded by the genial presence of Mr. Everard himself.

We left Stag Lane at midday on Saturday to travel, by courtesy of the De Havilland Aircraft Co. Ltd., in the most comfortable way yet known to man. There was only one slight hitch, which was in no wise the fault of the admirable Puss Moth itself; but the compass was a most arrant liar. Anyway, when once the reference objects are missed a Puss Moth quickly carries its occupants into entirely new country, and we landed at Bicester where a polite Serjeant informed us of our whereabouts and smothered what mirth he must have felt while pointing out the mendacity of our needle.

Even so we arrived over Ratcliffe in just the hour, guided for the last 10 miles by the marquees and the most crowded machine park we have seen at any private meeting. The air was rather full of machines circling and the guests were apparently still busy arriving.

The organisation was excellent, and after each machine was ushered into line the occupants were conducted to sign the visitors' book and get badges, cards, tickets, etc., which entitled them to everything in Leicester, apparently, from free beer to a salute of 21 guns.

The aerodrome has the characteristic Hunter surface, and is quite spacious for private needs. One portion of its "L" plan was fully occupied by the machine park, which made it a little small for Sunday's west wind, but Leicestershire pastures bound it on the East and West.

The original plan was to have had the field opened by Miss Amy Johnson, but the lady, although present, was under doctor's (or *The Daily Mail's*) orders and Sir Sefton Brancker acceded, with his usual aptitude of phrase and sentiment, to Mr. Everard's formal request to declare Ratcliffe Aerodrome properly open.

The programme conformed closely to those of most other meetings with the difference that there seemed to be more going on, and that the "R.A.F. assistance" was the most perfect show we have ever seen and rather above even Hendon Display standard.

No. 43 (Fighter) Squadron, from Tangmere, sent a flight over by permission of the Air Council; and the organisers of the meeting may congratulate themselves on the lucky circumstance, as all their visitors do. The squadron aerobatics of No. 43 was a feature of the R.A.F. Display this year, and on Saturday three Siskins performed roped together in terrifying proximity but with marvellous accuracy. They added another variation which we had not seen before, and that was the loop in line abreast,—if anything slightly more nerve-wracking to watch than the one in V formation. There were some fairly experienced ex-Service pilots watching them from below and they exclaimed in admiration.

WELL AND TRULY OPEN.—Sir Sefton Brancker, at the microphone, opening Ratcliffe Aerodrome at the request of Mr. W. Lindsay Everard, its owner, who is standing beside him. Mr. Nigel Norman, of Airwork Ltd., can be seen holding down the loud-speaker wagon.—(*"Aeroplane" photograph.*)

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PART OF THE PARTY.—Some of the 150 aeroplanes which spent the week-end at Ratcliffe. Their arrangement is typical of the excellent organisation.—(*"Aeroplane" photograph.*)

Flt. Lt. Thornton led the flight, and not so very long ago he was flying Bristol Fighters in India, a pastime in which he indulged for five years. His wing-tip accomplices, Pilot Officers Simmonds and Elsmie, are not very long from Cranwell; mere babes, as it were. Between them they put up a show which looked like the fruit of years of specialised training.

A formation of Leicester Club Moths performed later, and put up a very nice exhibition although the gusty wind made it rather frightening at odd moments. Individual aerobatics and crazy flying were contributed by Flt. Lt. Tom Rose, Flt. Lt. G. H. Stainforth, Mr. R. R. Bentley, Mr. Snaith (in a silver Comper Swift), and others.

The fly-past was particularly representative and included the Puss Moth (Gipsy III), Desoutter I (Hermes), Desoutter II (Gipsy III), Hendy 302 (Hermes), Moth (Gipsy I), Moth (Cirrus III), Avian Sports (Hermes), Spartan Arrow (Hermes), Klemm (Cirrus III), Klemm (Salmson), Spartan (Cirrus II), Spartan three-seater (Gipsy II), Comper Swift (A.B.C. Scorpion), Martlet (Gipsy II), Morane Parasol (Salmson), Robinson Redwing (A.B.C. Hornet).

Mr. Raymond Quilter made a well-timed parachute drop, and delayed it for a predetermined number of seconds by a stop-watch which he took with him.

The race for the Cup given by the Society of British Aircraft Constructors, open to Club machines piloted by Club-trained "A" licensed pilots was won by Mr. O. J. Tapper for the London Aeroplane Club,—who is one of the pillars of the A.A. organisation, and thoroughly deserves some reward after all the good work he has done for others.

The "set piece" and sharpshooting turn provided the comedy touch and were well received by the large crowds which occupied all the public enclosures and also the road on the East side.

Several sharp rainstorms came in the middle of the afternoon, but although they sent the crowd running for shelter the programme went on exactly as before.

The Dinner-Party.

The guests of the occasion dined with Mr. Everard at the Bell Hotel in the evening and about 300 sat down. The affair was as cheery as such a function usually is when the Leicester Aero Club crowd have a proprietary interest in it. We grieve that there were occasional lapses from decorum on the part of the guests, and, whereas the shouting—or singing?—which greeted the arrival of Mr. Everard and the guests of honour showed very well merited enthusiasm, the shower of rolls with which Mr. Harold Perrin was accosted can most charitably be described as lacking in taste. More plainly it was an unsuitable piece of hooliganism for a private party.

THE LEICESTER CLUB FORMATION.—(Left to right) Messrs. Mankby, Lawn and Freeston, who put up a splendid formation flight on Moths.
—(*"Aeroplane" photograph.*)

When Mr. Everard had proposed the Royal Toast he thanked his guests for coming, hoped they had enjoyed, and would further enjoy, themselves, and forbore to keep them longer from the dancing, as he said.

The assembly, however, had suddenly contracted a thirst for wise words from the great. When the host remained obstinately seated they called for Sir Sefton Brancker by the loudly reiterated formula: "We want Sefton!". Eventually they got him—for a minute or so. And then the insistent shout went up for "Winnie Spooner." Miss Spooner replied briefly and most aptly. Miss Winifred Brown was shouted to her feet, and some calls for Miss Amy Johnson, in defiance of the doctor (and/or *The Daily Mail*), were silenced by head-wagging from the head table.

Finally the gathering transferred itself to the dance hall until the correct hour of midnight. What happened thereafter history does not divulge, but the environs of Leicester were said to lack their nightly quietude until Sunday had practically dawned. Nocturnal splashing in the river Wreak is not always caused by otters, and some say that ghostly strains of music were heard from wayside haunts at unearthly hours.

Sunday's Doings.

Everybody who mattered seemed to be at breakfast with fair appetites. Mr. Stewart David prowled among the company in rubber waders. He had been trying to wake up Grosvenor Cup competitors for some hours before most of them appeared, and such as he could capture he ferried out to Ratcliffe per Rolls Royce. Largely as a result of his efforts the first heat was run off about noon. Rain showers complicated matters and made Mr. C. P. Hunter frowned a disapproving frown as Mr. Everard squelched over

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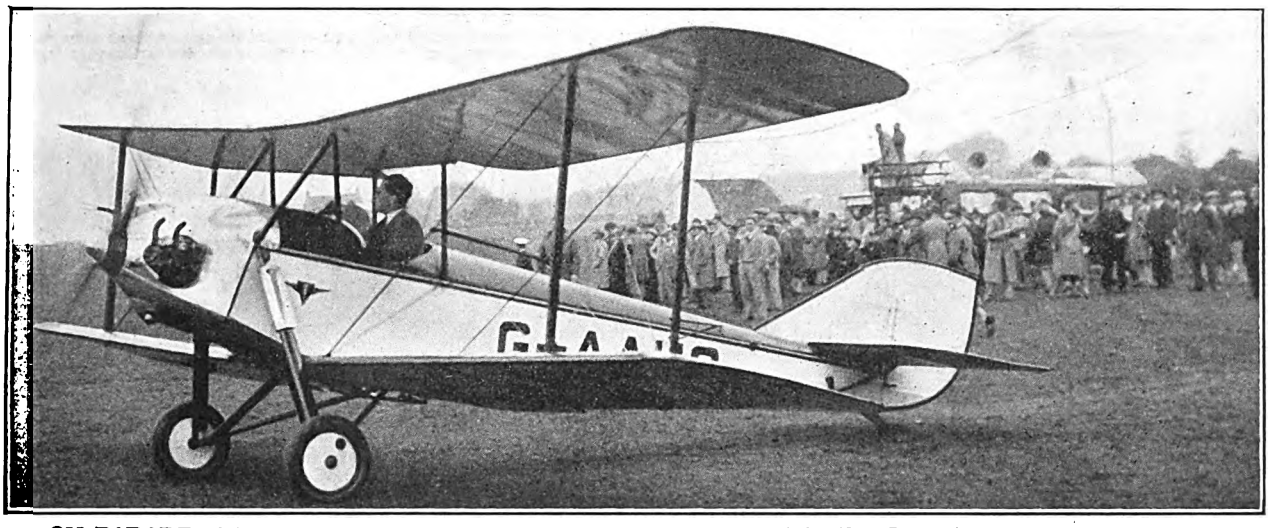

ON PARADE.—Mr. Robinson taxying out the Redwing to take part in the fly-past.—(*"Aeroplane" photograph.*)

his own new aerodrome in a heavy car. The race went on as usual throughout.

The first heat was won by Mr. W. L. Runciman in a Klemm (Cirrus III) with plenty to spare. He was limit man and maintained a good lead over Mr. S. A. Thorn in his Sports Avian (Hermes). The familiar Widgeon (Genet) of Mr. J. "Wellworth" flew an excellent race, but was nosed out, and Miss Slade on her Moth (Gipsy I) passed the Leicester Club Moth but failed to keep a better position.

The limit man also won the second heat,—this time Mr. Turnbull of the Newcastle Aero Club in a Moth (Cirrus II). The fight for second place was quite brisk, but Mr. A. C. M. Jackaman flew a beautiful race in his equally beautiful white Puss Moth and passed Major H. G. Travers of the London Aeroplane Club right on the aerodrome. Flg. Off. H. H. Leech provided hot competition in a Desoutter (Hermes) but just failed to overtake the leaders.

Flt. Lt. Stainforth flying a Sports Avian won the third heat and beat Mr. J. D. Irving in his cleaned-up Moth.

The last of the heats was won handily by Mr. Edgar Percival in the Hendy 302, and Flt. Lt. Tom Rose in his hooded Bluebird was able to keep a nose ahead of Mr. Stewart David in Mr. Everard's Puss Moth, so came in second. He kept his position by no more than he had made by very tight cornering, or than David had lost when squeezed wide on a turn by Mr. Styran in the Desoutter II.

In the final Mr. Turnbull again won in his ancient Cirrus-Moth at an average speed of 95 m.p.h. and thereby keeps the Grosvenor Cup for the year. His rival limit-man, Sq. Ldr. Runciman, in the Klemm, took second with an average of 92 m.p.h. Mr. Percival in the Hendy managed to get a third with the fine average speed of 125.5 m.p.h.

Tankards were presented to Mr. S. A. Thorn for winning the arrival competition, Flt. Lt. Scroggs, for being next most punctual, and to Mr. Jackaman for coming the farthest. He had flown from Liège.

A RECORD GATHERING.

About 150 aeroplanes were gathered to do honour to Ratcliffe over the week-end. They varied in size from the Comper Swift to the Saro Cloud (two Wright Whirlwinds). The arrival of the latter on Saturday was the signal for a rush on the part of a large and inquisitive crowd who broke out of the enclosure, headed by all the youngsters, and the police had some difficulty in keeping them within reasonable bounds. Time was when even so distinctive a type as the Cloud would not have aroused unusual interest, but airmindedness is evidently on the increase.

The list of guests is too voluminous to give in detail, but it included most of the leading lights on the flying side of sporting aviation. At times the aerodrome was too occupied for comfort with machines landing, taking off or flying across, but this is a matter which only the pilots themselves can see to adequately. No amount of ground control will keep machines safely separate in the air, but strict policing has a very salutary effect and is the more needed as meetings become more crowded.

A mishap which came very close to marring a most enjoyable function occurred on Saturday evening when Mr. A. T. H. Kirby, of the Hampshire Club, a master mariner described in the papers as a Captain, R.N., flying in a Spartan with Mrs. Kirby, had complete engine failure taking off. The cause has not been officially promulgated, but the evidence on all counts indicates water in the petrol. The machine stalled and crashed in an adjoining field. Mr. Kirby was uninjured, but Mrs. Kirby was extricated from the front cockpit and taken to hospital with injuries which were afterwards ascertained to be a broken right arm with cuts and bruises. A suspected fracture of the leg was luckily a false alarm.

Relief was general on Sunday morning when Mrs. Kirby's condition was announced to be less serious than had been expected the night before. Mr. Purt and Mr. Winn, of the Leicester Club, who visited Mrs. Kirby in hospital, report that her first expressed sentiment was one of relief that they had not hit anybody, and the second one of regret that they had contributed so undesirable a feature to such a splendid entertainment. Concerning her own hurt she seemed quite cheerful.

The Air League Cup for an Inter-Club Relay Race was postponed until the coming meeting at Gatwick.

THE BRISTOL GARDEN PARTY.

The Garden Party and Display, organised by the members of the Bristol and Wessex Club to entertain the members of the British Association at the Whitchurch Airport on Sept. 6, was a purely informal affair, and as such was a complete success, as some three hundred and fifty members of the Association honoured the function with their presence.

Promptly at 15.00 hrs. Mr. H. S. Broad took the air in his demonstration Gipsy-Moth AALT and gave an aerobatic and inverted flying display well up to his usual excellent standard.

The Bombing Competition for the Talbot O'Farrell Challenge Trophy provided the next excitement, particularly for the judges, who were taking cover under the table which served as a target. Incidentally one noticed that a party of officials who had joined the judges at the table beat a hasty retreat after Mr. Broad dropped his first bomb from the Puss-Moth. Presumably a Puss-Moth flying at a height of three feet does not look altogether healthy at close quarters. The queer approach of the Autogiro in this event was also rather entertaining.

The Trophy was won by Mr. C. R. Greenhill, and Mr. Peter Bartlett took second place, with Mr. Will Hay and Mr. Broad third and fourth respectively, all in Club Moths, with the exception of Mr. Broad's Puss-Moth.

The next item was a demonstration of the Autogiro (Genet) by Mr. A. Rawson, followed by an aerobatic show in which Mr. Peter Bartlett in a Club Moth was the central figure.

About this time a fly-past of one of each type of aircraft present was set in motion. The parade was led by the original Westland IV (three Mk. III Cirrus), which has a wonderful take-off, even when over-loaded, followed by a Bristol Trainer (Jupiter VI), a Puss-Moth, a Gipsy-Moth, a Desoutter (inverted Gipsy), a Bluebird piloted by the Hon. Mrs. Victor Bruce, with the Autogiro bringing up the rear.

The last item on the programme was a parachute descent by Mr. John Tranum, whose parachute worked perfectly, to the intense relief of the guests, although a little further consternation prevailed when some air was spilt in order that the landing should be made on the aerodrome, and not on the Tramway Centre.

At the end the prizes were presented by the Lord Mayor of Bristol, Councillor Walter Bryant, who was accompanied by the Lady Mayoress.

Additional entertainment of a technical nature was provided by the Air Ministry and Merlyn Motors Ltd. The Air Ministry's contribution consisted of a demonstration of the reception of weather reports by wireless and forecasting therefrom, under the direction of Mr. C. V. Ockenden, of the A.M. Meteorological Station, Worthy Down. The Merlyn Motors' show consisted of an exhibition

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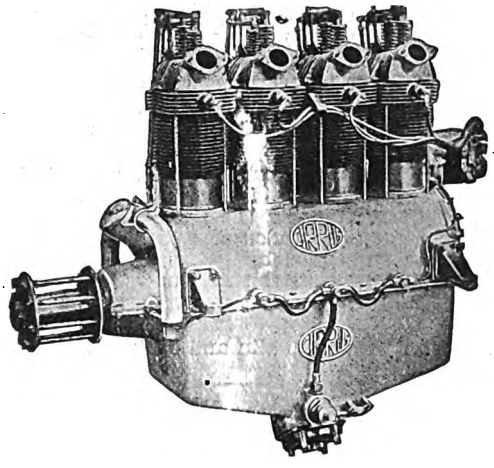

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of models, engine sections and metal components, loaned by the Bristol Aeroplane Co., a similar show loaned by the Westland Aircraft Co. including their patent oleo legs, rudder bias gear, and fuel-tank welding, and plans of the four airports of Hull, Bristol, Blackpool and Manchester.

—A. H. L.

THE SHANKLIN MEETING.

In the face of much religious oppression and of local weather depression the Isle of Wight Flying Club held a very successful meeting, their second this season, on Sunday, Aug. 17. Though erroneously described as the "Second Air Pageant," the Meeting was a great success. Some 8,000 people paid for admission. The glaring faults of disorganisation for which the first meeting was made famous on the Island, were conspicuous by their absence, and this time the whole affair was excellently managed.

Just exactly why the Meeting should have aroused protestations from the pious section of the Shanklin community, one is at a loss to understand; especially as the Club had considered their feelings and held the Show between the hours of 2.30 p.m. and 5.30 p.m. The assumption therefore is that a disturbed afternoon's nap was the real object of protest and not altogether that of breaking the Sabbath. At 2.30 p.m., promptly, there was a "Grand Fly-past of some of the 25 or so machines assembled, led by Flt. Lt. Tommy Rose in a Sports Avian (Hermes), Mr. Piercy followed in Mr. Barnard's famous Puss-Moth, AAXW, the Arens control of which was of great interest to club members and to the more discerning of the public. In succession came Mr. Brett in a D.H. Moth; Mr. Talbot-Lehmann in a Widgeon (Cirrus III); Mr. Olley in the Redwing (Hornet), Mr. Rogers in a Klemm (Cirrus III), and the Hon. Mrs. Victor Bruce in her Bluebird (Gipsy II).

As each machine flew past, Mr. E. C. Brown, the aviation manager of Messrs. W. B. Dick and Co., described its salient points.

Mr. Bentley, in the Shell Company's Moth, treated the public to some hair-raising crazy flying. "Flight-Admiral Nevamis," piloted by Mr. Stack, in the Hermes Moth fitted with Smiths' instruments, proceeded to "shoot-up" a target, from which were suspended bottles whose colour was familiar to most of the Club's habitués, but when hit and found to be empty, misgivings about wasted contents were set aside.

A race to Sandown, round Shanklin and back to the aerodrome was won by Mr. Malcolm in a Moth (Gipsy I), on handicap against Mr. Napier in a Widgeon (Gipsy I), Mr. Brett in a Moth (Gipsy I), and Mr. Stack in a Moth (Hermes), who drank the prize there and then to the great delight of the crowd.

The ubiquitous Mr. G. Murray then gave one of the greatest aerobatic displays which one has seen since the Hendon Pageant, and certainly the best ever witnessed on the Island. His display ranked with that of Mr. Stack's, whose spectacular manœuvres won him a warm place in the public regard.

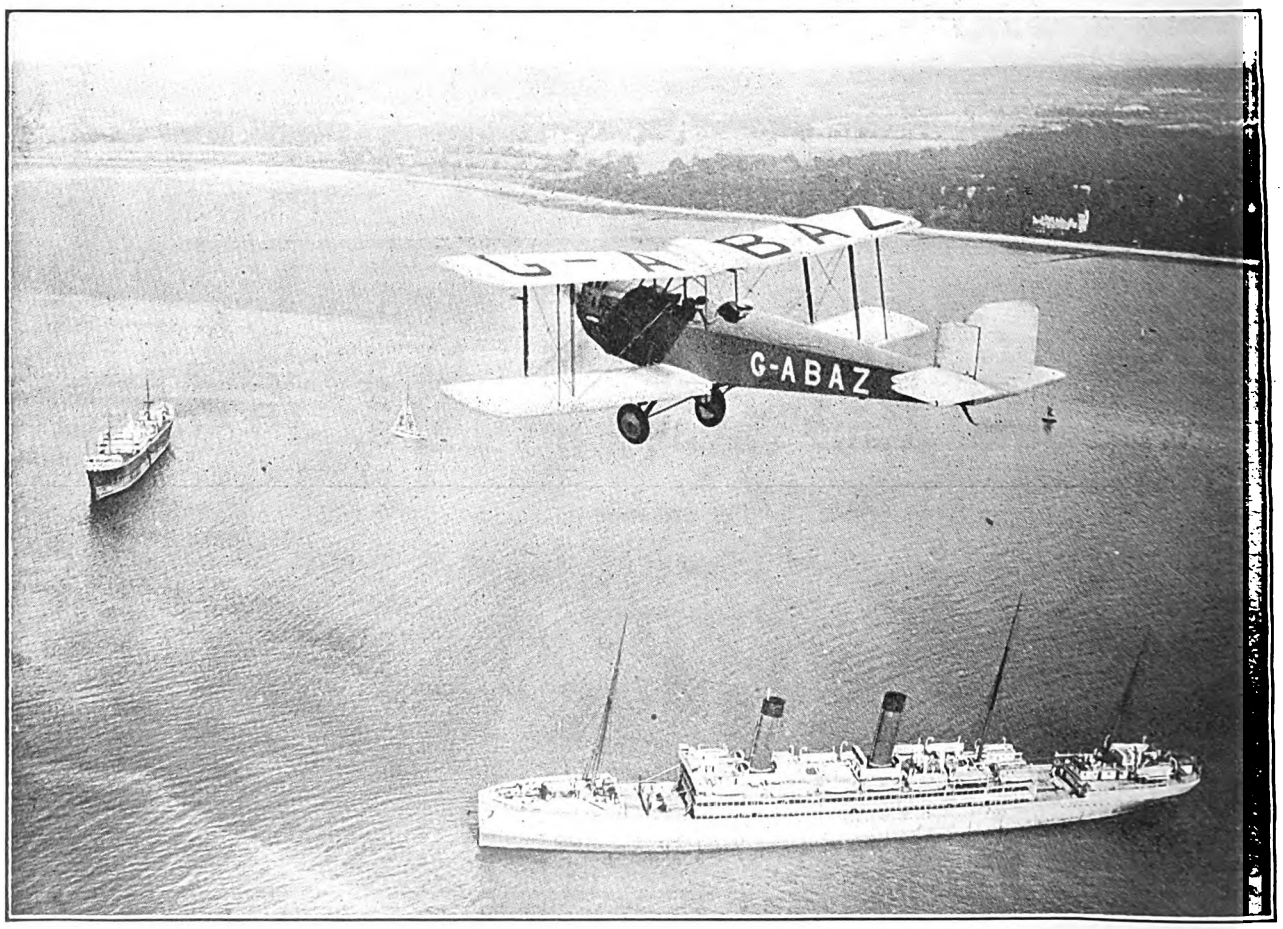
A humorous situation arose during the Spot Landing competition in which Mrs. Victor Bruce, and Messrs. Lehmann, Brown and Bentley participated. Different orders had apparently been given to each, so they flew round for some time, each waiting for the other to land, till one of the pilots, disregarding orders, landed, and was followed by the rest. Mr. Bentley proved to be the winner of this event.

Soon after this Mr. John Tranum descended with a parachute from a Bluebird piloted by Flt. Lt. Tommy Rose.

At about 4.45, Messrs. Brown, Bentley and Dick, and Flt. Lt. Rose endeavoured to break up bunches of balloons. The two former were successful and tied on the number of points for the prize.

So ended the second and certainly best aviation meeting that Vectisians and others had ever seen on the Island, thanks to the untiring energy of Wight Aviation Ltd., which company is composed of Captain R. M. B. Ward; the Secretary, Mr. A. G. Murray; and the Club's instructor, Mr. W. L. Woodward, late R.A.F., all of whom worked wholeheartedly to make the Meeting the success it undoubtedly was. Besides being the Club's instructor, the last-named is also the firm's pilot and so flew almost continuously giving joy-rides to sundry persons throughout the afternoon.

Once again the Club were fortunate in having Mr. Jeffs, of the Air Ministry and the Royal Aero Club directly responsible for the control of machines and flying. Mr. Ivor McClure, the A.A. aviation representative, had charge of the organisation of the flying part of the meeting. Their efficiency brought the show to a successful end without accident or mishap. And at about 17.00 to 17.30 hrs. the orderly crowd of spectators dispersed to their various habitations, or to church, after a happy afternoon's enjoyment of innocent amusement.—T. A. S.-Ll.



AN OPEN FIVE-SEATER.—Lt.-Col. Louis Strange flying the (technically) three-seater Spartan with four young passengers over Southampton Water.

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A tremendous competition which included a race of over 2,000 miles round Italy was won by Col. Paride Sacchi in his Breda 15 S. monoplane, fitted with 'Walter' engine using Shell aviation spirit.
Herr Lusser, flying a Klemm monoplane, fitted with 'Argus' engine came THIRD, using special Shell petrol and Golden Shell Oil.

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"The Sailplane."

If you want a copy of the second issue of "The Sailplane" let us know not later than Saturday.—3 months 3s. post free. Single copies 3½d. from 175, Piccadilly, London, W.1. A few copies of the first issue are still to be had, price 4½d. post free.

THE AFTERMATH OF HOOTON.

A good sportsman in Manchester, who is annoyed at the remarks which appeared in The Aeroplane about the handicapping in the Liverpool-Manchester Race for the Cundiff Trophy, and by various letters and remarks which have appeared in the Manchester papers, points out that all these suggestions are entirely untrue and are doing serious harm to Manchester men's reputation as sportsmen.

The entries of Messrs. Dobson and Cantrill were never accepted,—because the machines were owned by A. V. Roe and Co. and Cellon Ltd., respectively, and the race was only for aeroplanes of private owners and the Clubs.

Mr. Hall arrived at the starting line with an engine essentially different from that described in his entry form. Mr. Mills had no exhaust pipe and made other alterations.

The handicapping was done by Mr. Dancy of the Air Ministry, so nobody can quarrel with that,—and the alterations to compensate for these alterations were made by competent authorities.

The decision that Flt. Lt. Allen had not broken the rules by turning short at the start was made by Group Captain A. D. Cunningham, C.B.E., R.A.F., O.C. No. 5 F.T.S., Sealand.

The Racing Committee was composed as follows:—Flt. Lt. N. Comper, of the Comper Aircraft Co. Ltd.; Mr. A. Mousdale, of the Liverpool Aero Club; Capt. P. T. Eckersley, Chairman of the Lancashire Aero Club; Mr. J. F. Leeming, who was one of the founders of the Manchester Club, and Mr. D. F. Dyson, an experienced and perfectly independent aviator. So nobody could have had a better Committee.

Incidentally, in describing the doings at Hooton one omitted, in the hurry of getting the article through in time, to mention one of the best bits of flying of the day. Just before the race finished a Bluebird appeared out of what was then becoming a leaden sky and disgorged Mr. George Kenning, J.P., the well-known dealer in Morris motor cars of all kinds in the Midlands and Manchester district. Piloted by Mr. Windsor, of Airwork Ltd., he had come over from Sheffield, passing through some of the very nastiest weather between there and Manchester, and after the race was over he started back again.

Mr. Kenning is one of the latest converts to air travel. The week before he had flown to the Convention of Wolseley agents at Birmingham, and then he went on Friday to the Convention of Morris agents at Oxford. And he flies quite regularly in his Bluebird between Sheffield and London. His intention is to present the Bluebird to the Sheffield Club as soon as the local people have summoned up enough energy to form the Club properly.

A LONDON AERO CLUB OCCASION.

On Sunday, Sept. 7, a number of the members of the London Aeroplane Club met at Stag Lane for a farewell dinner given to Mr. F. R. Matthews. Mr. Matthews has resigned his post as pilot-instructor to the Club and has plans of his own, which will take all his time. The guest of honour was presented with a silver cigarette-case and sincere expressions of good wishes.

Another guest of honour, Miss Amy Johnson, who had come from Leicester to attend the function, was notified of her election as a life member of the Club, and presented with a gold membership badge. Mr. Will Hay was in the chair. Mr. A. G. Store will be second pilot-instructor.

A FLYING WEEK-END AT LLANDUDNO.

On Sept. 20 there will be a flying meeting at the new aerodrome near Llandudno, North Wales, and flying exhibitions will continue over the week end.

The presence of visiting pilots is cordially invited, and they are advised to communicate with Northern Air Lines Ltd., Barton, Lancs, for information concerning accommodation, maps, etc. Arrangements have already been made with certain well-known dealers and manufacturers for the presence of machines and demonstration pilots.

THE ROUNDABOUTS ARE COMING!

A general notice has been issued to airmen by the Air Ministry with the purpose of reducing the risk of collision on the air routes interconnecting Hanworth, Heston, Northolt, Stag Lane and the Harmondsworth aerodrome of the Fairey Aviation Co. Ltd.

An area of restricted flight has been defined within the following boundaries: North, straight lines joining Stag Lane aerodrome, Ruislip and Uxbridge; West, straight line joining Uxbridge and Staines reservoir; South, straight line joining Staines reservoir and Walton reservoir; East, straight lines joining Walton Reservoir, Osterley Park and Stag Lane aerodrome. Flight within this area at less than 2,000 feet should be avoided.

Aircraft coming into or leaving an aerodrome within this area should use the shortest route between such aerodrome and the nearest boundary of the area. Aircraft proceeding from one to another of these aerodromes should fly outside the boundary in an anti-clockwise direction.

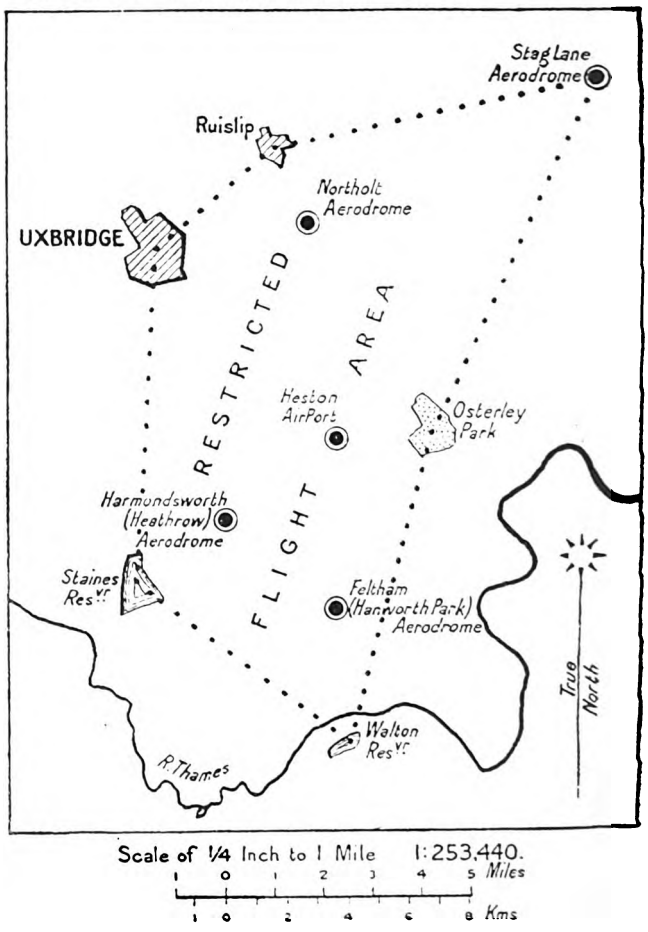
The actual effect of the regulation will be somewhat as follows: if an aircraft is proceeding from Hanworth to Heston it will fly almost due East for one mile, turn sharply left towards Osterley Park, upon reaching which it will again turn sharp left and fly two miles slightly North of West to Heston. Returning from Heston to Hanworth the aircraft will fly Eastward to Osterley Park where it will turn left and fly to Stag Lane aerodrome, about which it will make a circuit of about 300 degrees and head for Ruislip. From there it will continue to circumnavigate the restricted area with Uxbridge, Staines Reservoir, and Walton Reservoir as turning points. The journey will be between 35 and 40 miles. The straight line distance is three and a half miles.

Pilots should note that Service aircraft will not observe these rules, and that they are temporary and experimental.

Owner-pilots, school and club students will agree that the more temporary they are the better. There is a large number of pilots who depend upon these aerodromes for their practice flights, especially their cross-country flights, which must be short for economic reasons. The regulation practically bars inter-aerodrome visits, as such a flight automatically involves a complete circuit of the area.

How school machines are to avoid flying below 2,000 feet is another problem, but nothing is said about exempting them. "Aircraft flying on courses which pass across the restricted zone should, weather permitting, fly at an altitude of at least 2,000 feet," says the notice. Fortunately for those who wish to avoid a 40-mile merry-go-round for a four-mile journey they can impersonate aircraft "flying on courses which pass across the restricted zone," and by climbing to 2,000 feet they can proceed about their business with brazen directness.

How this safety regulation may be experimental is hard to see. The number of collisions within this area between civil aircraft is not so great as to give a statistical basis of comparison, so apparently the plan will be adjudged a failure if a collision occurs, and if none does nobody will know whether it is a success or not.—F. D. B.



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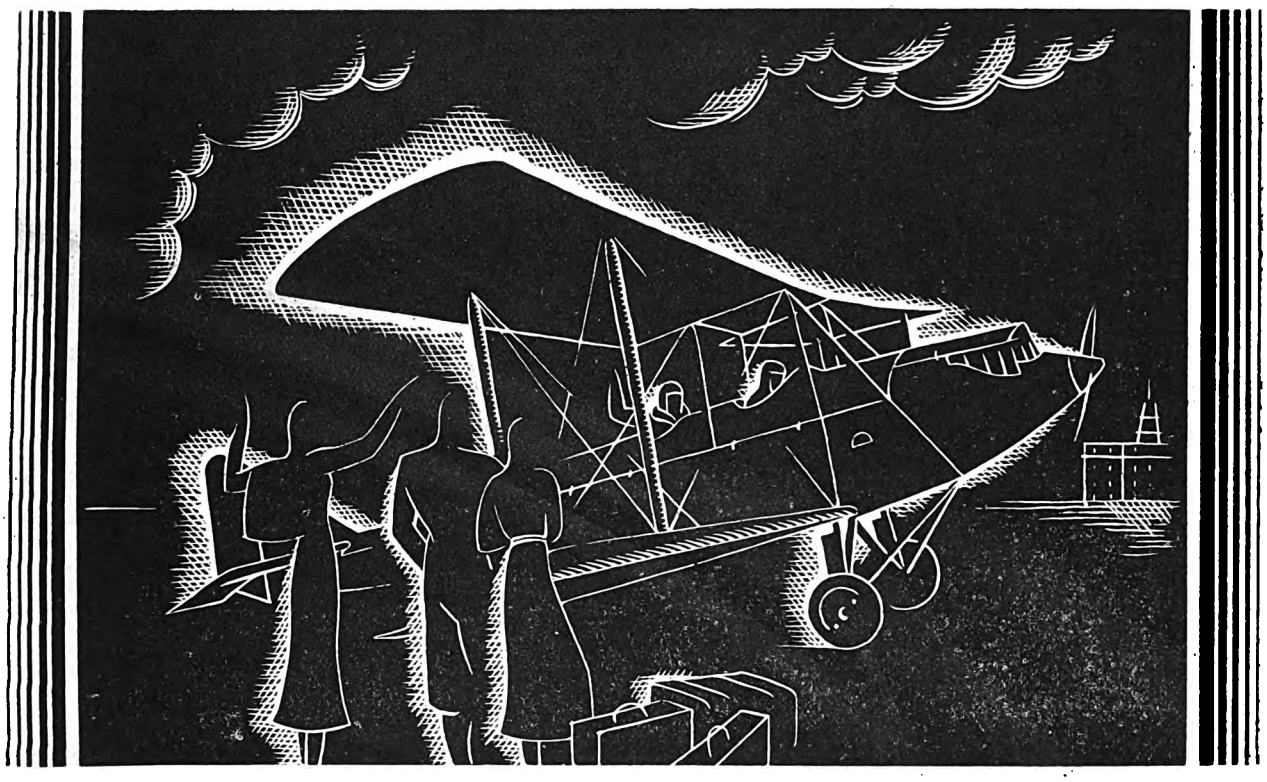

The horseman would say of her that she had 'a velvet mouth.' The yachtsman that she was 'quick about.' The flying men of thirteen nations praise her for her good, easy temper and obliging manners in the air.

There is in her nature a sufficiency of mustard, but of vinegar no trace at all. She is the Avro.

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THE NORMAL AEROPLANE.

By F. D. Bradbrooke.

One who possesses "normal" eyesight is quite abnormally fortunate, and in this sense we record our impression, after flying it, that the Puss-Moth is a normal aeroplane. Its handling qualities are so striking in their effect of rightness and balance that the word expresses admiration rather better than a list of superlatives.

The first flight "in sole charge" of this aeroplane is an experience which should really arouse lyrical tendencies in the most materially-minded pilot. If he is less used to cabin craft than to the open cockpit types—which is true of the great majority of pilots to-day—the comfort and handiness of it all will be more than a mere novelty, and the splendid view over and about the inverted engine gives an altogether pleasant feeling of being thoroughly in command of the situation.

Instead of peering under cowlings for readings of instruments and compass he may refer to them and his maps with as much comfort as if they were laid out on a library table. Besides the placing of the dials the brightness which the inside of the cabin gets from the large windows in front, at the sides and in the roof, is an important factor in making everything so perfectly visible.

Visibility to the rear is obtainable in some degree by pulling up to a fairly steep angle and looking backwards through the roof, and above on either side a good view can be got by tilting the machine slightly and again using the roof window. In a turn the direction towards which the aircraft is tending can also be scrutinised by this means. In fact, the roof window is so useful that it would gain definitely by being slightly more dome-shaped, although the best use of it would then mean either raising the pilot's seat an inch or two or making it adjustable. [Or alternatively the wing might be lowered to make a mid-wing machine. Conceivably a domed top might quite upset the existing excellence of the elevator and rudder controls. And a mid-wing monoplane might do likewise.—C. G. G.]

The performance of the Puss-Moth is too well known to need emphasis, but the ease with which it attains a cruising speed of over 100 m.p.h., with a 120 h.p. engine and comfortable accommodation for three, can hardly fail to astonish anyone flying it for the first time. Its absolute ease of control is even more marked than in its famous predecessor the ordinary Moth.

The air-brakes start by being quite amusing, and then exceedingly useful. On shutting off the engine the machine continues to glide, in ordinary flying position, at 80 m.p.h. or more, and only by raising the nose to what at first appears a ridiculous degree, can the proper gliding speed of 55 m.p.h. be achieved. On shutting off the engine we put on the air-brakes immediately, and as the windows were open the aerodynamic commotion was quite audible outside as well as being visible on the air-speed dial with great promptitude.

With brakes on the Puss-Moth still has a flatter glide than an ordinary Moth, or seems to, although comparison is difficult from such totally different positions of observation. We under-rated it at the first attempt and found ourselves with quite an undignified residuum of kinetic energy, so took off again. Next time we did a sedate glide which seemed unreasonably slow, except that the controls still had an authority that was definite to the point of being peremptory, and the air-speed read 55. By a little furtive adjustment of the air-brakes between fortissimo and a few bars' rest occasionally, the approach became very accurate and the landing as easy as that of any machine we have yet flown.

The advance reports of the traits of a machine are generally exaggerated by popular gossip, and the flat glide, floating tendencies and long run of the Puss-Moth are no exception. The machine has an abnormally flat glide, thanks to its aerodynamic cleanness, but with the air-brakes on the angle is much the same as that of an ordinary Moth flying light.

The real source of its floating reputation lies in the abnormal ratio which the cruising speed bears to the best gliding speed. Most aeroplanes practically drop out of the hand at half their cruising speed. Some will do so very promptly and with no uncertain reaction. The Puss-Moth at half her cruising speed is still so far from the stall that she has about 15 m.p.h. still in hand, but such a wide ratio comes as a surprise, and after cruising easily at 110 m.p.h. the tendency is almost natural to glide in at about 70, especially as she does it at a very flat angle. With as clean a machine as this such a speed is sufficient to float her across a very large aerodrome indeed.

ROYAL AIR VOYAGERS.

H.R.H. Prince George recently paid a second visit to the Norfolk and Norwich Aero Club. He was joining a shooting party at Ranworth and decided to come by air himself and follow up his guns and kit which came by motor. The Royal party arrived in the Prince of Wales's new Puss-Moth, G-ABBS. Prince George was piloted by Mr. Fielden and accompanied by Major Butler.

While waiting for the motor-cars to arrive the Prince spent half an hour at the Norfolk and Norwich club house inquiring into the progress and achievements of the Club. Prince George has visited Mousehold once before and the Prince of Wales has been there once.

DE HAVILLANDS IN CANADA.—The first Puss-Moth to arrive in Canada standing in front of the works of the De Havilland Aircraft of Canada Ltd. at Toronto. Standing in front of the machine are, from left to right: Geoffrey O'Brian, the company's pilot, R. A. Loader, the General Manager of the company, Mr. V. O. Levick, Col. R. H. Mulock, General Manager of Canadian Airways Ltd., which operates the Eastern Canada air mail lines, Mr. R. Cockeram, President of Prospectors' Airways, and a veteran pilot-prospector who owners a Moth seaplane, and Mr. H. A. Oakes, Operations Manager of Northern Aerial Minerals Exploration Co. Ltd., and one of the most prominent commercial pilots in Canada.

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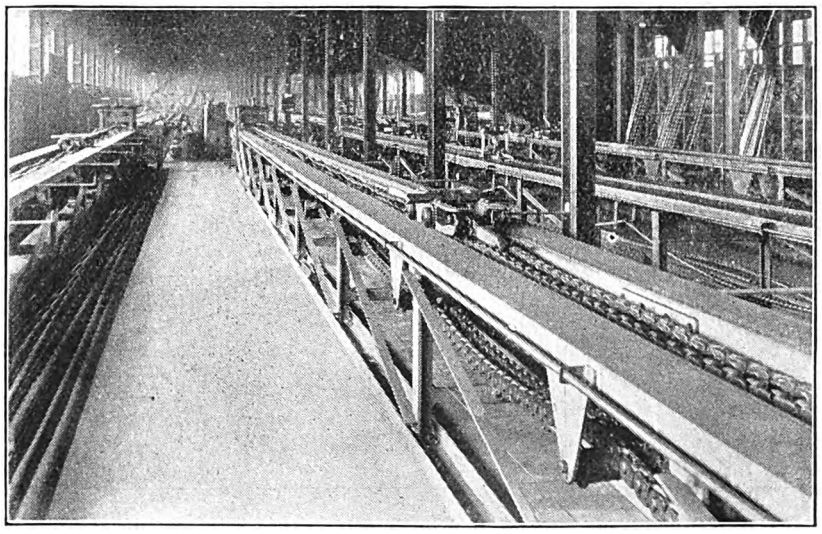
ALL-METAL AIRCRAFT



View of the four draw-benches in the Boulton & Paul Works.

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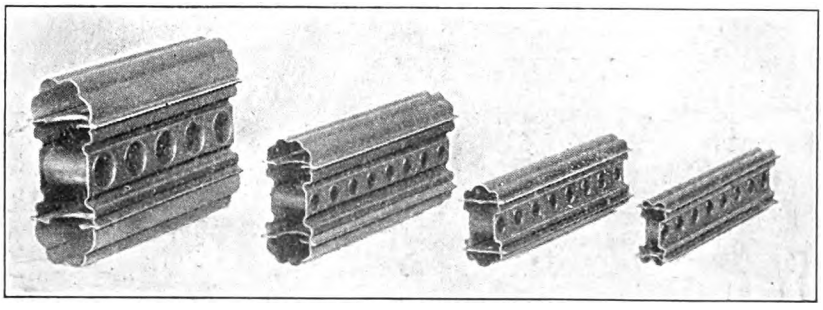

Four of the range of standard steel Spar Sections designed and manufactured by Boulton & Paul Ltd.

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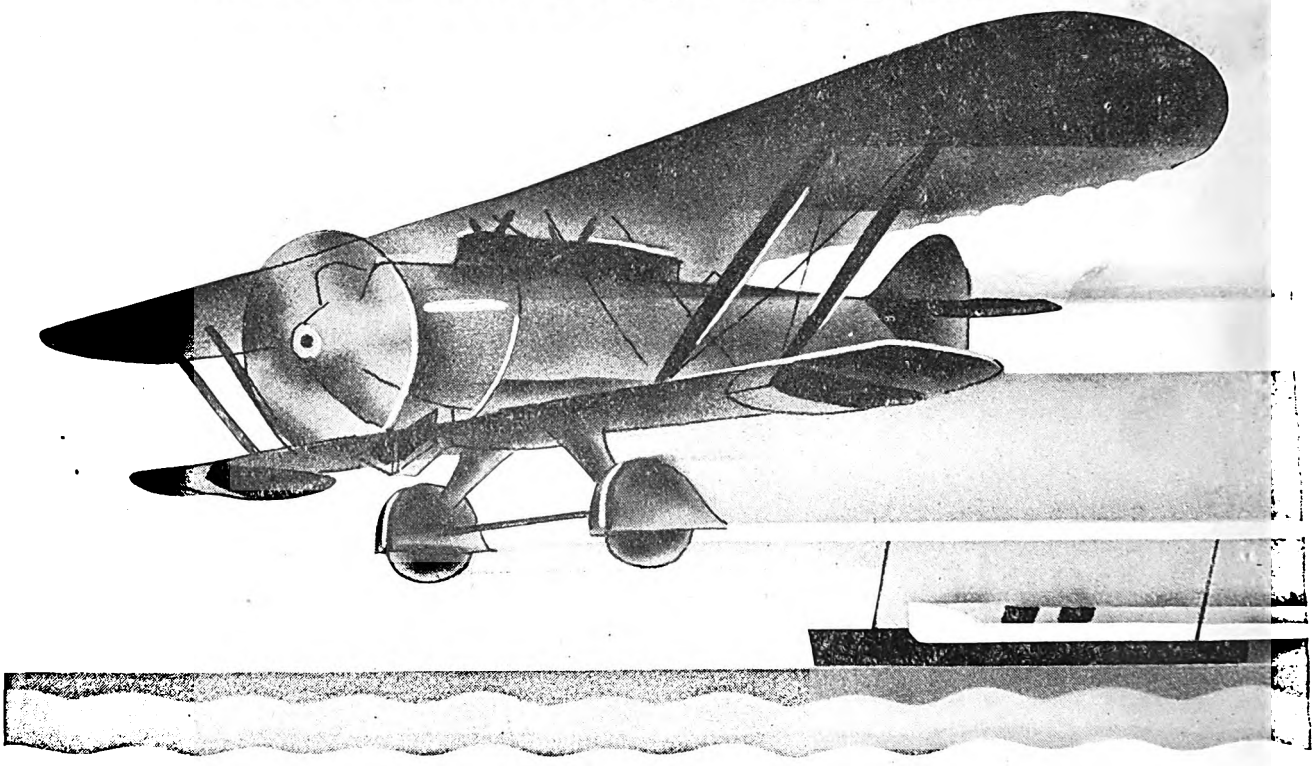

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COMMERCIAL AERONAUTICS.

EASTWARD IN A WESTLAND WESSEX.

FOR BELGIUM.—The last of a batch of four Westland Wessex monoplanes (three Armstrong Siddeley Genet-Major engines) before leaving Croydon for Brussels.—(*"Aeroplane" photograph.*)

OO-AGF is the last of a batch of four Westland Wessex aeroplanes supplied to the *Société Aéronautique Belge pour l'Exploitation de Navigation Aérienne (Sabena)*, or the Belgian Air Lines, by Westland Aircraft Ltd., of Yeovil. On Sept. 2 we had the pleasure of travelling in it as far as its new headquarters in Brussels.

A company as large as *Sabena*, which operates services within Belgium and to several European countries outside, and also in the Belgian Congo, has to cater to a big variation in pay loads. Even on the main routes there are seasonal variations which are sometimes large enough to affect quite seriously the efficiency with which equipment is used. A step towards off-setting this disadvantage, without sacrificing any of the qualities of safety which have made such a extraordinarily fine record for *Sabena*, was taken when the Westland Wessex was put into service.

With one pilot and four passengers, and appropriate amounts of luggage, the Wessex has exactly half the capacity of the Fokker F.VII (three Titans), about half the power with its three Genet Majors, and the same cruising speed. Furthermore it is a three-engined high-wing monoplane using five-cylinder radials, so that pilots and ground staff have not to accustom themselves to wide differences in general type. Incidentally the exceedingly neat cowling of the wing engines compares favourably with others we have seen.

The tri-motored feature was one which *Sabena* officials were very reluctant to forego in choosing their lighter aeroplanes. For European trips, especially across the Channel, three engines are a distinct safeguard. With the three Genet Majors of the Wessex the night mail and freight service between London and Brussels can be conducted to better advantage than with the bigger Fokkers when the load happens to be small.

Our 'bus arrived at Croydon just before the regular Fokker left for Brussels. The Wessex was already there with Chief-Pilot P. Cocquyt, of *Sabena*, and Mr. Patrick O'Neill, their British agent. Strangely enough the fourth member of the party was Sq. Ldr. W. T. L. O'Neill, now Deputy Director of Civil Aviation for India. M. Cocquyt was anxious to be away on the heels of the regular machine, so we climbed in, and OO-AGF left her native sod in quite brisk fashion.

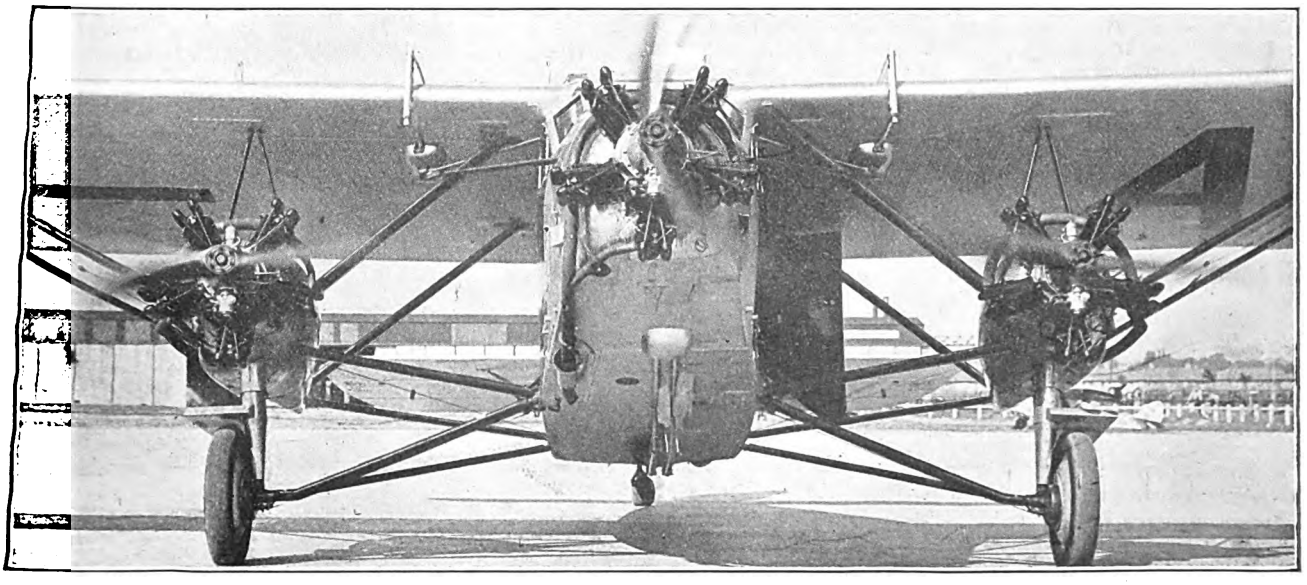
The machine is painted in the black and white of the *Sabena* fleet, and inside the walls are done in silver with grey leather upholstery. There are adjustable head-rests on the chairs, sliding windows, pockets, elbow rests, and all the odd fitments which passengers seem to find desirable. There is plenty of room and the cabin is particularly wide. The arms of the chairs are made to fold inward slightly to allow easy passage up the central gangway, but otherwise the width is unnecessarily ample.

After stowing our maps, hats and cases on the luggage racks we took turns in the front office beside the pilot. He is normally separated by a door from the passengers, and sits on the left of his compartment without dual controls. Having no wireless he wore no helmet. The door is on the right, and there is plenty of room on the doorstep thereof if privileged passengers want to study the instruments. There are naturally plenty of these last. The set for each wing engine is placed high up on its own side of the cockpit and the nose engine dials are central. The air-speed and altimeter appear in front of the pilot with his compass and turn-and-bank indicator. All inscriptions have been done in French.

On the right of the dash-boards are the petrol cocks surmounted by a diagram showing connections for the wing tanks and collector.

Switches for two magnetos on each engine are immediately in front of the pilot and can all be cut at once by a master bar.

Pedal control is used for the rudder and a tension device is provided to add load on the proper side if a wing engine fails. The control column is at the left and is surmounted



TRI-MOTORED.—A nose view of the Westland Wessex showing the three Armstrong Siddeley Genet-Major engines all ready for the take-off for Brussels.—(*"Aeroplane" photograph.*)

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by a segmented wheel for aileron operation. All three throttle-levers are at the pilot's left hand.

M. Cocquyt took off after a short run and climbed at 60 m.p.h. with the engines turning up 2,200 r.p.m. This is their normal speed in level flight. Without bothering to climb beyond a few hundred feet he struck off towards Lympne, leaving his Fokker confrere, who had wireless, to take a more direct route.

The Wessex cruised along at a fairly steady 95 m.p.h., which is rather faster than most. The stated cruising revs. will hardly be used consistently, however, because the machine will be used on the same schedules as the Fokkers, which are seldom kept cruising at more than 90 although quite capable of it. Also 2,200 revs. is fairly high when the highest permissible is 2,400.

OO-AGF came to Lympne in short order and circled twice very rapidly and about as tightly as a normal loop. We saw weather panels on the ground revolving too fast to read in comfort and then we shot out over Folkestone and the English Channel. The vertical banks were repeated over the Calais look-out tower after a speedy crossing of the smoothest-looking sea we ever remember. For once we forebore to be compassionate over the marine Channel-crossers.

France and Belgium were unusually sunny and pleasant, but M. Cocquyt kept the Wessex grimly to her 95 m.p.h. There was a slight ground haze but we made out Ypres and Poperinghe to the South and Dunkerque was very plain on the other side. The day was smooth and the only bumps were when Sqdn. Ldr. O'Neill leaned over the pilot and tried the controls. There was very little vibration, as the Majors seem to feel quite happy at 2,200, and the noise is less than in a three-Titan Fokker.

Approaching Brussels the pilot demonstrated the manœuvrability of the machine on two engines. He throttled the starboard Genet right back and continued to fly on the other two with apparent ease. After doing so for a few minutes he bethought him that the other engine might be cooling unduly so opened the throttle—and choked the motor. The airscrew stopped completely. The altitude was not much over 1,000 ft. and there was plenty of Brussels to cross before the Haren aerodrome drew near, so M. Cocquyt put the Wessex into a slight power dive in an effort to restart the dead motor before it got cold. The height was scarcely enough, however, or the compression too good. The airscrew flicked over two or three compressions rather reluctantly but nothing fired.

M. Cocquyt gave it up and over the palace of the King of the Belgians we climbed perseveringly on two out of three. At 60 m.p.h. she gained 500 ft. in a few minutes and then flew level at 75 m.p.h. The remaining engines were throttled to run at their standard 2,200 revs. Over the aerodrome our pilot made another effort to crank the silent engine by a faster dive, but by this time it was thoroughly cold. He whisked about on one wing-tip in a low vertical bank, presumably registering insouciance, and made what the daily press refers to in admiring tones as "a perfect landing."

A moment later the regular Fokker from Croydon came in, having started just before us. We learned, however, that it landed passengers at Ostende and so was slightly delayed. After that again, the Wessex OO-AGE landed from Liége and took off for Antwerp.

M. Renard, General Manager of *Sabena,* declared to us that he was very satisfied with the results so far obtained with the Wessex. The three earlier ones were all in service on internal lines and doing very well. His pilots, he said, had tried the performance on two engines and managed to get a ceiling of nearly 5,000 ft. with full load,—whereupon we explained that a demonstration had already been granted to us and we were personally quite satisfied.

When the well-known night mail service of *Sabena* between London and Brussels fails to provide full cargoes for a Fokker or—which is much more likely on the Brussels—London leg—overloads one Fokker, a Wessex will be put on. Wireless equipment will be provided for them on this or the daily cross-Channel services.

M. Renard also gave very high praise to the finish and workmanship shown in the Westland product.

One thing, which just goes to show that the men regularly on the job often differ from those who design machines for them, cropped up in the matter of the rear-view mirror. Personally we felt rather kindly towards it, as our own feeling in most cabin machines is a desire to look behind before a turn, but M. Cocquyt was not warmly enthusiastic, and he has flown cabin machines for a good many years. He is evidently and essentially a forward-looking young man. The Westland Wessex is the only commercial machine we have seen with such a fitment and the general reaction to it will be interesting.—F. D. B.

AT WAALHAFEN AERODROME.

The presence at Rotterdam of the Junkers G-38 recently enticed us from Brussels for a day. These very large and none-too-certainly-useful aircraft derive a fascination from mere size, which can only be explained by childlike curiosity. Our curiosity is now satisfied.

The Germans have again done something colossal by way of a bold experiment. They have proved that the scale law can be beaten up to a point, but whether it has merely been thrust into the background by sacrifices in other direction remains to be seen. The G-38 flies fairly well,—for we saw it take off and climb in good form with a score or more of people on board,—but it seemed to lack something in sheer convincingness. We saw the Fokker 32-passenger in New York and were much more impressed.

The G-38 is a fearsome monster from any point of view, with a huge grey bulk of corrugated metal and protuberant engine-nacelles in the leading edge of the great back-swept wing. The biplane tail is a good bit larger than most complete aeroplanes, and is entirely cantilever. The elevators have balance-weights. The whole empennage wobbles a little when the engines are being revved up, which should not produce an uncomfortable feeling, because it happens in most large machines, but the comparatively small section of the fuselage at the rear and the wide unbraced tail surfaces convey a sense of insecurity.

At strategic points all over the upper surface of the wing are little vertical wires about three inches high which carry streamers of string. Obviously the flow of air over the lifting surface is being studied carefully and systematically.

Inside, the seating accommodation is remarkable for its extent rather than its luxury. Round every corner is another alcove, and in the leading edge between the pilot's cabin and the main engines the passengers may sit and look through celluloid windows which curve from practically under their feet to over their heads.

The engines are within the wing and the exhaust is led out through fore-and-aft slots in the top, from which flames leap to awesome heights when the engines are throttled back after a run-up. The two engines on either side of the fuselage carry geared four-bladed airscrews and the outer and smaller motors have two-bladed screws on longish forward projections from the leading edge.

The sight of passengers going aboard is amusing from their very number, although on this occasion a full load was not carried. The great machine manœuvres easily on the ground with the help of its brakes, and although the Waalhafen Aerodrome looked, too small for it in a north and south direction it took off easily and headed straight over the docks for Amsterdam low down.

The Latest Koolhovens.

After the departure of the Junkers giant we were taken by Mr. Koolhoven to inspect certain lesser but very useful-looking craft. A Cirrus-engined K.41, which we know best in England in the modified form as the Desoutter, was ready

IRISH COMMERCIAL AVIATION.—A Desoutter Mk. II cabin monoplane (D.H. Gipsy III engine) which is being operated as an air-taxi by Mr. H. Cahill of the Iona Engineering Works of Dublin.

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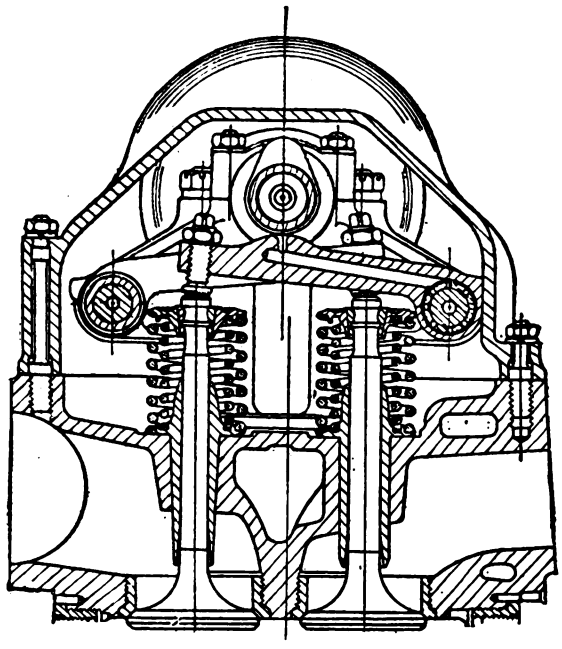

ADVANTAGES OF THE ROLLS-ROYCE 'F' AND 'H' ENGINES

(B)—Valve Operating Mechanism

The Rolls-Royce valve rocker arrangement has been designed so as to reduce to a minimum the overall height of the cylinder block, thus decreasing aircraft head resistance. The mechanism is totally enclosed and positively lubricated from the main oiling system at low pressure

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for its purchaser, and the tandem two-passenger K. 42, which has a high wing over an open cockpit and a Hermes engine, was being made ready for speed trials in Belgium by some extra streamlining.

The really interesting exhibit, however, was the K. 43. This has a strong resemblance to the K. 41. The square section fuselage is welded up from steel tube and has seats for four in two pairs. The front pair have dual controls. The wing is a cantilever structure of similarly varied section but slightly greater span than the earlier type and attaches to the fuselage in the typical Koolhoven manner.

There are suspension-struts running slightly outboard from the bottom longerons to meet the wing and take the landing stresses from the compression leg of the undercarriage, which is attached where they join the wing. This arrangement gives the front view of the machine the typical Koolhoven look.

The K.43 has a Hermes engine and has an estimated cruising speed of 100 m.p.h. The weight has been kept down by various means, such, for instance, as covering the rear part of the wing with fabric instead of the usual plywood and so arranging things that one less suspension strut is needed. In fact, the machine will have a normal load nearly equal to its empty weight.

WEST AUSTRALIAN AIRWAYS.

Western Australian Airways Ltd. began operations in 1921 and still maintains its lead in Australian aviation. It now controls 3,000 miles of route between its terminals. This length of route is operated once weekly in each direction and Perth as headquarters occupies a position approximately 1,500 miles from each terminal. The whole route will be found on the air map of Australia on page 626.

The North-West route between Perth and Derby has been operating for eight years, and calls at the principal coastal ports which serve the pastoral and mining areas. The traffic consists mainly of passengers, mails and freight, and the service is looked upon as being of vital importance to the residents living in this territory.

The aeroplanes in use are D.H. 50 four seat cabin biplanes which cruise at a speed of approximately 100 miles per hour. There is no night flying on this route and the return journey is completed in less than five days.

The Perth-Adelaide service began operations in June 1929, and this service connects up with the overseas mail steamers which arrive at Fremantle every Tuesday and depart for England every Monday. This service speeds up the carriage of English mails and passengers by two days, and has an effective gain in mail times to Melbourne of four days, owing to the fact that the train mails arrive there at the week-ends, and are not immediately available to the business community. This route is operated with D.H. Hercules 14 passenger cabin biplanes which cruise at approximately 100 miles per hour. There are three intermediate stopping places, two of which are on the Trans-continental railway route and the third is on the coast in the vicinity of the Great Australian Bight.

The route is equipped for night flying, and in winter night flying is required on every trip. Rotating beacons manufactured by the Sperry Company, and equipped with 900 watt lamps are stationed at various points along the route, and can be seen by pilots for upwards of 70 miles. On the section from Perth to Kalgoorlie the company was responsible for the installation of the lighting, and beacons were accordingly located at eight intermediate points over the 350 miles stage.

The route from Kalgoorlie to Forrest was equipped by the Government, and the majority of this extends across the Nullabor Plain. This section of the route is equipped with nine rotating beacons. The ground at Forrest, which is the overnight stop is illuminated by 10 k.w. flood-lights.

The rotating beacons are supplied with current generated from English Electric generators direct-coupled to Petter oil engines, and have batteries that are of sufficient capacity to enable the light to burn for 12 hours if necessary. The beacons are stationed on the top of windmill towers and the generator equipment is housed in the base of the towers. At the base of each beacon there is marked the number of the beacon, which is placed on the western side, and the letter "E" which is placed on the eastern side, so that a pilot flying under bad conditions, upon reaching a beacon, can tell immediately which beacon it is and the direction of his goal. Under the good conditions that normally prevail there is no difficulty whatever in following the railway during the night and keeping two beacons within sight.

At Forrest the company has erected an 18-roomed hostel for the convenience of passengers, and this is equipped with electric light, refrigeration, electric washing machines, etc. and is very favourably commented upon by the travelling public. Every Sunday morning fresh fish from Ceduna, near the Great Australian Bight, is carried in the aeroplane to Forrest, where a week's supply is stored in the refrigerator.

Hangars of 90 ft. span by 120 ft. deep of all-steel construction with concrete floors have been erected at Perth, Adelaide and Forrest. Fueling equipment is located at these three points, and also at Kalgoorlie and Ceduna. Large underground tanks are installed and power-driven centrifugal pumps supply fuel to the machines at the rate of 20 gallons per minute. Hand-operated oil filling equipment enables speedy replenishment of the aircraft oil tanks.

The fare charged on the trans-continental route is £18, which includes transport between the terminal cities and the aerodrome, and meals at intermediate depots, and also the overnight accommodation at Forrest. This fare is 50 per cent. above the rail fare, and approximately half that usually charged by aircraft operating companies for similar services. The result is that the passenger traffic is considerable, and its speed and convenience is greatly appreciated by the business community. The route is covered in one and a half days, and the actual flying time is approximately 15 hours. The machines leave the terminals at 10.00 hrs. after delivery of the mails, and reach the other terminal city at 13.00 hrs. the following day.

The company employs eight to ten pilots, and has a total staff of approximately sixty-five. One of the chief reasons for the continued success which has attended the efforts of the company is the ability of its pilots to do their allotted tasks. Although all pilots are carefully selected after they have attained extensive flying experience, their schooling is completed at the company's headquarters before they are allotted regular flying duties. The result of these methods is shown in the performances of individual pilots, and two of these pilots have already flown over 3,000 hours each with this company. The damage sustained has been negligible, particularly in the case of one pilot who has had no greater damage to any of his machines than a punctured tyre.

The operations conducted between the terminals of 3,000 miles make this the second longest route in the world to be operated by one company, the longest being the route from England to India.

The following statistics give an idea of the company's activities since its inauguration to the end of 1929:—

Passengers carried	(Perth-Derby service) ..	7,037
.. ,,	(Perth-Adelaide service) ..	2,031
.. ,,	(Taxi and Joy-Ride) ..	11,372
Machine flights	.. ..	9,665
Miles flown	.. ..	1,386,747
Letters carried	(Perth-Derby service) ..	1,663,862
.. ,,	(Perth-Adelaide service) (lbs.)	27,326
Freight carried	(Perth-Derby service) (lbs.)	278,808
.. ..	(Perth-Adelaide service) (lbs.)	10,011

THE PILOTS' EXCHANGE.

The Guild of Air Pilots and Navigators announced not long ago in THE AEROPLANE that they were in touch with several vacancies for good pilots without knowing of suitable men to fill them.

The Guild now announce that they were able to fill the vacancies from the rush of applicants which followed the appearance of the paragraph—which may or many not have been a coincidence—and have now on their books a number of first-class pilots who are open for engagements.

Applications from employers should be made to the Guild of Air Pilots and Navigators of the British Empire, 61, Cheapside, London, E.C.2.

THE K.L.M. STRIKE.

Mr. F. Vos, member of the Dutch Parliament, has written to the Minister of Transport an inquiry about the delay in the Government Arbitrator's intervention in the matter of the K.L.M. strike, seeing that the concern is subsidised by the State.

The Netherlands Union of Air-traffic Pilots publishes a statement, of which the following is an extract:—

Various persons have criticised our attitude by which we declined to make public the painful affair of the stoppage of the flying services and our desire to discuss the subject only with those concerned. After ample consideration we had decided not to seek publicity, but now the subject is to become a subject of discussion in the Second Chamber of the States General, we believe we ought to break silence on the points which will be brought forward.

We emphasise the fact that pilots v. Dyk and Wiersma were dismissed because they would not undertake the flight to the E. Indies on the conditions proposed by the K.L.M. Their refusal was grounded on the coupling-up of the experimental flights to the East to the ordinary flights on the European lines, which unification is regarded by all as unreasonable, especially for those pilots engaged before anyone had thought of the possibility of an East Indian service. The Union therefore considers, if only for this reason, the dismissal of the two pilots as unjustifiable.

The Management of the K.L.M. has refused to confer with the Union. The older pilots have an agreement by word of mouth only with the K.L.M. and the younger pilots have no binding agreement as to conditions.

The Union is bound to support its members in case of invalidity and widows and orphans and to promote as far as possible the welfare of aviation. This last is the reason of our present silence. If all attempts at arbitration (or mediation) fail we shall not hesitate to publish in full our side of the question.

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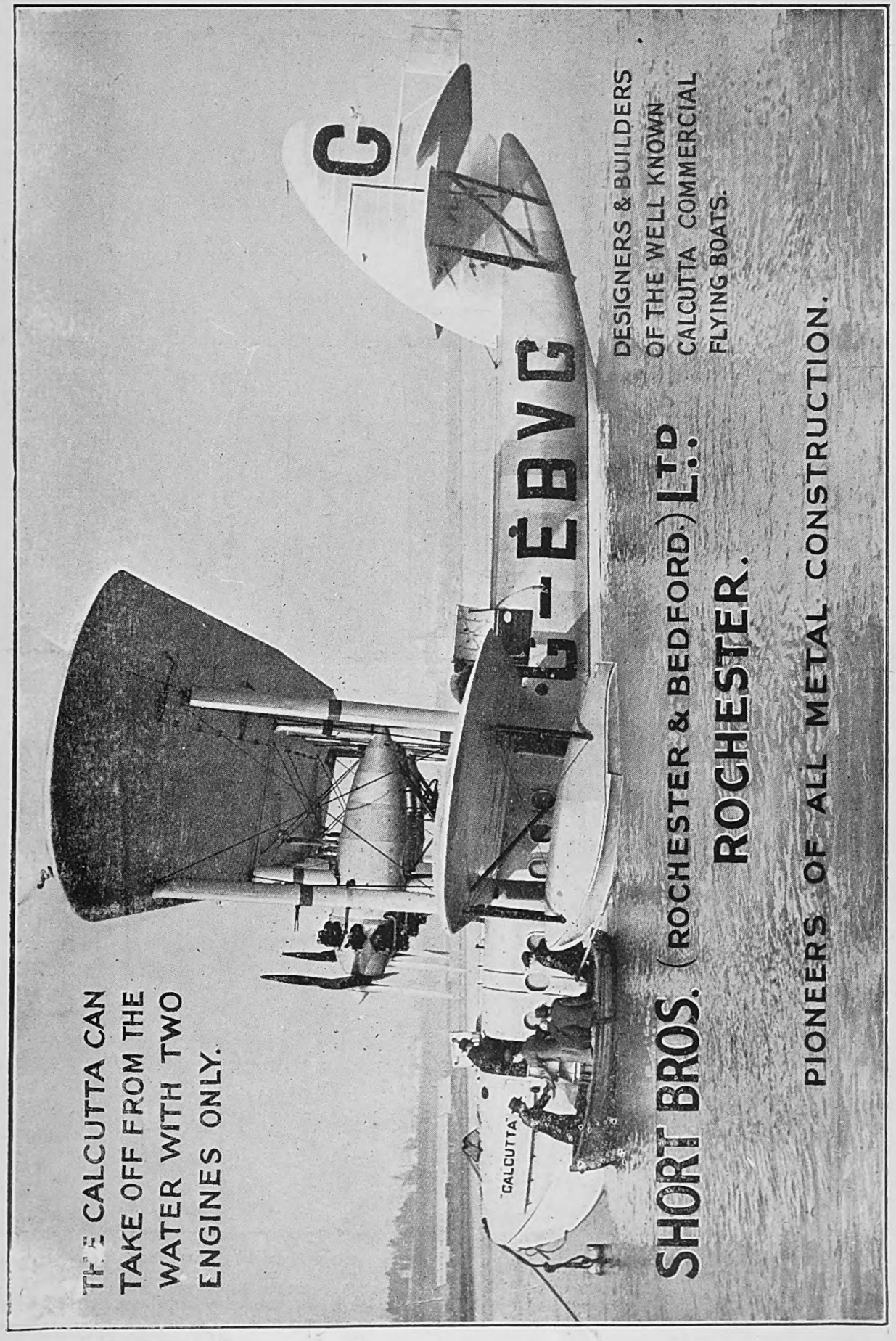

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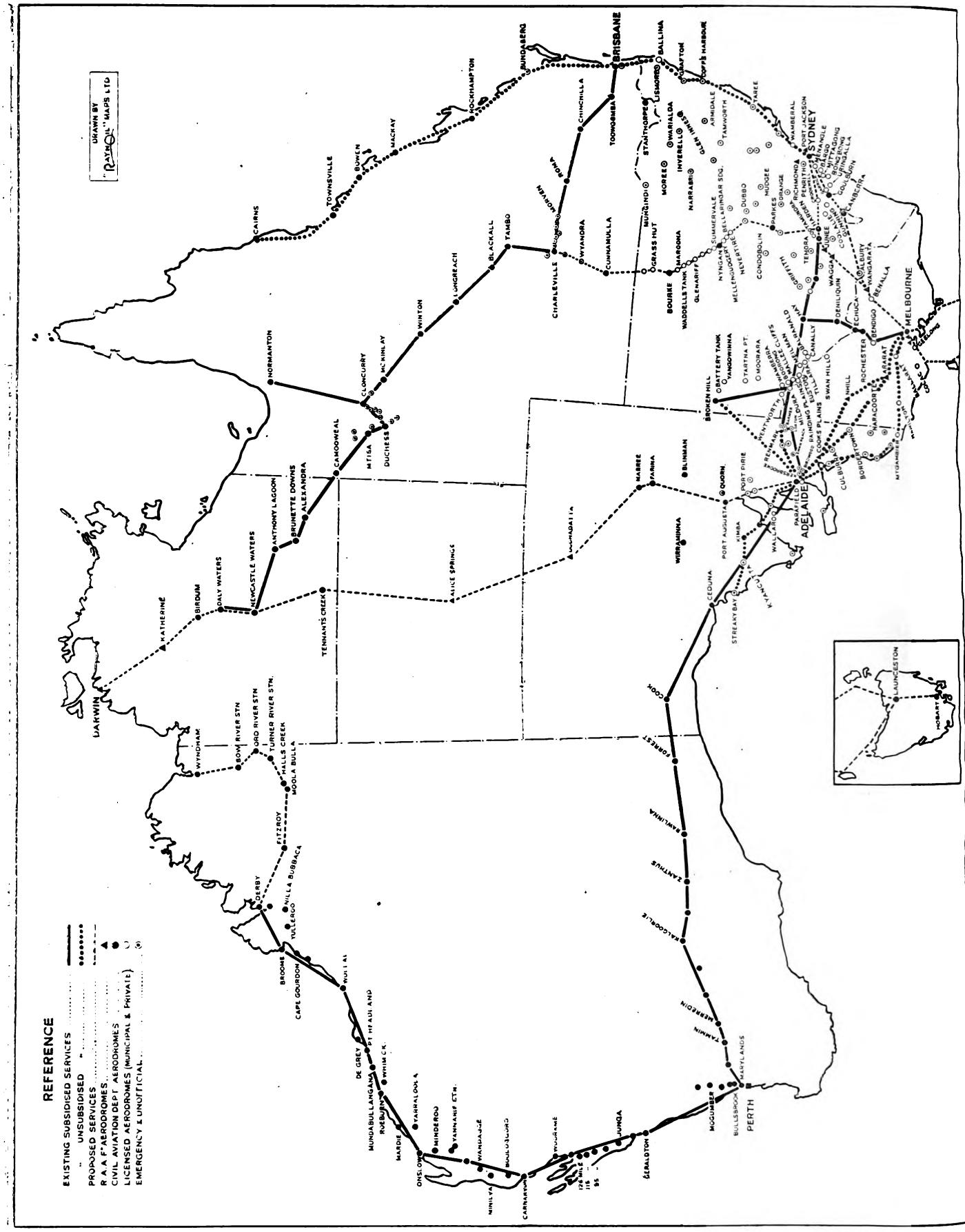

AN AIR MAP OF AUSTRALIA.—For this map, which shows the latest complete compilation of air-lines and landing grounds in Australia, "The Aeroplane" is indebted to Mr. E. B. Wilshire, Chairman of the Aero Club of Australia, N.S.W. Branch. The map was originally made by the Shell Co. of Australia. The only important alteration since it was drawn is that the Larkin lines between Melbourne, Cootamundra, Hay, Broken Hill and Mildura, and from Camooweal to Daly Waters (Northern Territories) are no longer subsidised. In the original map the lines were in colours, and this version has been drawn for "The Aeroplane" by Raynoil Maps Ltd. The Subsidised Lines are:—Queensland and Northern Territories Aerial Services (Brisbane, Charleville, Cloncurry, Normanton, Camooweal); and West Australian Airways (Adelaide, Perth, Derby). The Unsubsidised Lines are:—National Air Services (Sydney—Brisbane), run by Wing Comdr. Kingsford Smith and Sq. Ldr. Ulm; the Brisbane—Cairns Line, run by Mr. Tracey; and the Larkin group.

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HAVE GRANTED THE FOLLOWING

WORLD'S RECORDS

GREATEST SPEED OVER
100 KILOMETRES.
FLYING OFFICER H.R.D.WAGHORN,
ON
SUPERMARINE ROLLS-ROYCE S.6.
7TH SEPT.,1929.
330·1 M.P.H. 531·200K.P.H.

FLYING OFFICER R.L.R.ATCHERLEY,
ON
SUPERMARINE
ROLLS-ROYCE S.6.
7TH SEPT. 1929,
331·6 M.P.H.
533·800K.P.H.

SUPERMARINE

WORLD'S
GREATEST
SPEED

SQUADRON LDR.
A.H.ORLEBAR,A.F.C.
ON
SUPERMARINE
ROLLS-ROYCE S.6
12th SEPT.,1929.
357·7 M.P.H. 575·700K.P.H.

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DISCOVERING THE FAR NORTH.

The Canadian Department of the Interior has recently issued a preliminary report on the aerial mineral exploration of Northern Canada. In it the author, G. H. Blanchet, B.Sc., D.L.S., F.R.G.S., describes the scope of aerial operations in the unexplored territory, the various projects undertaken during 1928 and 1929, mapping, climate, soil, etc.

The report is intensely interesting, if only as showing the mode of procedure in a field where the aeroplane has no equals.

To date the main prospecting work has been confined to the West shore of Hudsons Bay, although the aeroplane first came into use in the Red Lake area of Northern Ontario and the Rouyn area of Northern Quebec. The general inaccessibility of the country, its vastness, and the extreme shortness of the working season all combined to point to aerial surveying as the solution of development problems.

The immense difficulties in the way were recognised, but the investigations were undertaken with three main objects: 1. To look into the mineral possibilities. 2. To subject the suitability of the aeroplane to a severe test. 3. To learn by experience the flying conditions in the north.

The information has been secured at a high price in money and effort. Aerial exploration requires extensive ground organisation, including "caches" of fuel and supplies at remote points that can only be got there by slow and difficult means at present, although many instances are recorded of aircraft themselves establishing caches. And although the theoretical difficulties were great enough there were practical ones in addition that were greater still. The operators were prepared for a period during which skis would be required in the far north and pontoons farther south, with an intermediate territory where neither could be used, but it also turned out that tides were high and shelter scarce; the compass became first sluggish, then useless, as the parties flew north, and the most baffling and disconcerting of all dangers were the low misty clouds which trail their fringes on the ground for days together during Spring and Fall.

RIVAL ORGANISATIONS.

The most interesting territory to mining interests in the years mentioned was in Keewatin territory south of Chesterfield Inlet and near Baker Lake. The Hudson Bay coast drew first attention because it offered certain transportation facilities. No less than four independent expeditions set out in 1928 to explore it, all somewhat furtively as the competitive element was strong. Their means were interestingly varied. The Nipissing Mining Corporation sent in canoe parties, one by way of Great Slave Lake and Thelon River, the other up the Hudson Bay Railway, thence to Churchill and along the coast. The Cyril Knight Co. also used canoes, but employed aeroplanes to visit their parties. The other two, Northern Aerial Minerals Exploration Co., and Dominion Explorers, both fitted out ships to go into Hudson Bay and establish bases from which aircraft could operate.

The ships found that the season was only long enough to prepare for next season's work. The canoe parties used the entire season to get in and out again. From the bases established at Baker Lake and Tavane the N.A.M.E. and Dominion Explorers worked with aircraft during the following summer and accumulated more information than had ever previously been available about the country.

CONCLUSIONS.

From the work done the general opinion was formed that the west coast of Hudson Bay does not contain ore deposits of enough importance to warrant development now.

The pilots also found that a well-developed sense of locality was the most necessary qualification for successful work in the high latitudes as the compass was almost useless and the maps highly unreliable. The inaccuracy was mainly due to the limited scope of canoe expeditions which had done the mapping. On their line of travel the features were accurate enough, and such lines were often the only trustworthy means of following a course by air; but the features at any distance on either side of such trails were seldom recognisable.

Photography over such a vast area is not yet practicable, but a mass of general information, such as was collected, is of immense value in preparing charts for northern use to-day. These would merely include the main waterways and any pronounced features that might serve as landmarks.

A considerable amount of information was also collected on regional topography, wild life, the movement and numbers of caribou, distribution of the native tribes, etc.

Outlining the necessary conditions for successful aerial survey in Northern Canada, the report says:—

> But beyond the machine itself the most important consideration here, as for all northern work, is that of the men operating them. Pilots in addition to being good aviators, should be good navigators and should be able to take care of themselves on the ground.

The same, and more, applies to the mechanics. A canoe was designed to strap under the fuselage of an aircraft and is now standard equipment.

The report does not mention the types of aircraft used, but actually they were chiefly Fokker Super-Universals and Fairchild 71's, both with the 410 h.p. Pratt and Whitney Wasp engine.—F. D. B.

AVIATION IN TANGANYIKA.

Aviation in Tanganyika Territory during the past twelve months has been particularly active, although the world has heard very little about the actual work that has been done.

The first machine imported was an Avro Avian (Cirrus II), bought for surveying portions of Tanganyika Territory. Undoubtedly the buying of this machine (which was later baptised *The Tanganyika*) was brought about by the keenness of Mr. P. E. L. Gethin, A.F.C., the Hon. Director of Surveys, who, although now cut off from the Service, is still keenly interested in all that concerns aviation. The machine did excellent work, and was a source of great joy to many people in Dar-es-Salaam, who could see it flying about daily.

Later, however, an important step was made in the engagement of a pilot to handle this machine, and one could see that the Government were really going to take a serious view of flying. Unfortunately operations were thrown back by a slight accident which befell the machine some miles from Dar-es-Salaam, where the undercarriage and bottom planes were considerably damaged. It is at present awaiting the arrival of spare parts. But, alas, this is not by any means the important side of this matter.

The Survey Department have been granted a large sum of money to buy machines, equipment, and staff to do aerial surveys in all parts of Tanganyika Territory, and they say also that a large machine will be bought for the transport of Government officials from point to point, where speed is needed.

The rumour says that two Avro Trainers are also on order, together with another Avian. This will make the total fleet of the Tanganyika Government three Avians and two Trainers. All machines are, naturally, being fitted to carry an aerial camera, and there will be at least three pilots and a number of ground engineers. The statement can safely be made that this is the first Colony that has attempted such a venture, and they deserve all success,—which undoubtedly they will meet.

Mr. P. E. L. Gethin, A.F.C., has been appointed Director of Civil Aviation in Tanganyika Territory, and Mr. Gethin's interest in flying will certainly not be confined to the Government side, for he has also shown keen interest in the Civil side. But this again is an unfortunate position, for the members of the local Flying Club are unable to approach the clouds in any machine.

Two or three members have tried all ways and means to obtain a machine which can be used by the Club, and the pity is that up to the present they have not been able to get a machine. There are many members of the Aero Club of East Africa in Tanganyika,—but what benefit is the Aero Club of East Africa, situated in Nairobi, to those in Dar-es-Salaam?

Efforts were made some time ago to get the use of Sir Charles Wakefield's gift aeroplane, *Acea*, but owing to insurance, and to the fact that no tuition could be given on the machine the proposal fell through. But it *is* a shame that those poor people in Dar-es-Salaam cannot enter into aviation, as in Great Britain and other parts of the world. It is an ideal place for aviation, not only from a land point of view, but also from the sea, and many there hope that before long interested citizens will have a machine for joy-rides as well as for tuitional purposes. A Civil Aviation Club, combined with the Government Service would undoubtedly make Dar-es-Salaam and the surrounding areas one of the most important aviation areas in our Colonies.

Mr. Lockhart Mure, representative of the Aero Club of East Africa, has communicated with people at home with a view to getting a machine for himself. In the business house in Dar-es-Salaam of which he is manager there are four members of the Aero Club of East Africa, one of whom is a Service member who has had seven years' experience with the Royal Air Force in Great Britain and Singapore.

"INTERESTED."

MANY INVENTIONS.

When landing past the Aerodrome Hotel in the A.D.C. corner of the Aerodrome, machines are apt to go bumpetty bump on a nasty ridge, as many a pilot knows full well. This ridge, roughly parallel to the tarmac edge, may well be the last vestige of the raised embankment of a Roman road from Streatham over the hill to Purley and thence to the coast, possibly linking Croydon Aerodrome with Lympne Aerodrome, then a flourishing Roman seaport called Portus Lemanae. [Or more likely due south to the port which is now Shoreham.—ED.] Where British, French, German, Dutch and Belgian aircraft now trundle from the hangar to the departure station, British, Gallic, Germanic, Frisian and Belgic legions of the Roman army once tramped cheerily

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along singing whatever song corresponded to "Tipperary" in the Roman Army of those days.

Where the road runs up the slope outside the landing area and over the hill to Purley one of the embankments of it is clearly visible and the fact that there is a Coldharbour at the end of Purley Way is an infallible sign of a Roman road. Coldharbour is supposed to mean some sort of a rest house along the road where the harbourage was indeed cold, and to which you had to bring your own food and could not buy a drink.

In Roman times, just as to-day, Lympne was commanded by a Commander known as the Commander of the Turnacensian Band, which is, of course, Latin for traffic hands.

A tile found at Lympne inscribed Class: Brit: is thought to indicate that even in Roman times the commander was a naval one (Classis Britannicae), but another school of thought holds that this was merely some bloke's first-class season ticket to Brighton, which would naturally be issued on a tablet in those days.

Anyhow, it all proves that long ago highly civilised and cultured Britons had villas, nicely centrally heated, on the edge of Croydon Aerodrome during the Roman occupation (just like Spry to-day) and that all would have been well if a lot of hairy, savage Nordics had not come and wiped out that pleasant state of affairs, which is, of course, exactly what Nordics *would* do.

However, merely remarking that Amphibius Publius Jinx in plimsoll shoes and a yachting cap has been busily trotting up and down the Roman road recently, filling up the Saro Cloud with oil from amphorae and fastening cowling with fibulae, we will cut out this Roman stuff and try to talk sense.

The Saro Cloud is a good-looking aircraft with a Fokker type wing and has been extremely active since Mr. Macintosh and Mr. Jenkins took her over. A slight mishap to the undercarriage the other day (due we firmly believe to Jinx sailing without his yachting cap on that occasion) was quickly put shipshape, and after all hands had been piped aboard at nine bells on Saturday to the tune of Yo! Ho! Ho! and a bottle of Pale Ale, the Cloud left for Leicester, where there was an opening of the local M.P.'s aerodrome.

According to rumour, the Marconi people have been transmitting wireless photographs from their Bristol machine back to earth. The first one is thought to have been a full-face portrait of "Blossom," upon which for some technical reason his mouth was on his forehead and his ears on the top of his head, while his eyes were meekly crossed under his chin. This did not pass the censor at Marconi House, but a photograph of a prolonged whistle by Mr. Whistlecraft is said to have come out exactly like a portrait of a grass snake that had just swallowed a large toad, the bulge in the middle of the snake being due to a gulp on the part of "Whistle," who had himself just swallowed a fly. To give the Marconi people their due, they are extremely secretive about the whole show and appear thoroughly furtive and ashamed of themselves, though no doubt it is all for the best in the long run.

We understand that the late Mr. van Lear Black's Fokker F.VIIb, with the three Wright Whirlwinds, is for sale and is now lying at the Fokker Works, Amsterdam. This may be an opportunity for someone wishing to embark upon a long-distance flight. There is also a four-seater Koolhoven taxi machine with, we believe, a Hermes engine.

The Henderson Aviation Bureau is under the joint management of Mrs. Henderson, Capt. Allen Charles and Capt. Charles Allen, which may seem confusing, but none the less true. The first of these gentlemen is on the business side, and the second is "Charlie" Allen, who has been extremely busy doing Continental taxi jobs, joy-riding with the Puss-Moth and the other Moth belonging to the firm, and generally keeping the show moving. Mr. Hutchinson, who was with Daimler Airways and Imperial Airways Ltd., has joined the Henderson Aviation Bureau as ground engineer.

Walcott Air Lines have also been very busy of late, and one of their jobs has been the Lympne-Ostende newspaper service, leaving Lympne at dawn every morning, which they are operating until K.L.M. starts business again.

There appears to be no immediate settlement of the K.L.M. pilots' strike in view at present, and it is extremely odd to have no K.L.M. Fokkers overhead and no Dutch pilots about the place, after having had these pleasant things and people in and out of Croydon Aerodrome almost every day for the last ten years. There are a surprising number of anxious inquiries about the likelihood of an early resumption of K.L.M. services from esteemed clients of that firm.—SPRY.

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TRADE NEWS

A GOOD SYSTEM OF LUBRICATION.

When questions of lubrication arise in connection with aircraft, one thinks "Tecalimit." This system of taking the right amount of lubricant to the right place with the minimum of trouble and the squeeze of a pump has become an accepted part of the scheme of things and one takes it for granted.

There is an aspect of the problem that is not receiving the consideration that it should and this is the correct arrangement of the nipples for the easiest and quickest possible attention. The maintenance of aircraft, outside the sheds of the big air-lines and the well-equipped hangars of Imperial Airways, and private aerodromes like that of Airwork Ltd., is now being attended to by the owner or his own ground engineer. As ordinary private aircraft are made at the moment the lubricating nipples are all over the place. This is probably all in the best interests of "simplicating and adding more lightness," but in the multiplicity of nipples there is confusion and in greasing at many points the certainty of omission.

Those who remember the Bristol Bulldog at the 1929 Aero Show at Olympia will remember the very neat battery arrangement of the Tecalimit greasing system. The nipples for bearings, in, round, and about the cockpit were all conveniently placed on two plates at the side of the fuselage. An excellent idea and one that has in practice fully substantiated the claims which have been made for it.

There is no need to have a central lubricating system with miles and miles of piping threading its way towards the cockpit and defying the united genius of the D.O. to make it fold round the hinge-joint of the rear-spar. But there is a lot to be said for a system which should have a few definite greasing points, to which pipes from all the adjacent bearings would come. After all for short lengths such as one visualises here, the additional weight is negligible, a few feet of 3/16 pipe does not weigh much. One can thus have groups of nipples at strategic points, say at the side of the cockpit, by the tail unit, on the lower wing close to the aileron and so on. The undercarriage might be easier to deal with separately and individually. Anyway, talking of private owners and the like, Tecalimit Ltd., have organised a chain of Service Stations over the country where the car owner can have his oleaginous needs assuaged. One can see that this service could easily be taken advantage of by private owners who have the Tecalimit system.—T. J.

PETRO-FLEX.

Necessity is the mother of invention and of Petro-Flex as well. Petro-Flex, one should explain, is a flexible piping for petrol systems and the like. The War 1914-18 created an urgent demand for a flexible hose which would be strong enough to withstand the excessive vibration and be at the same time impervious to the action of petrol, benzol, and the whole range of hydro-carbon oils. Petro-Flex was created to meet this demand.—and did.

Petro-Flex is built up with two walls. The inner one is made of the requisite number of layers of a natural product which is indestructible and the outer walls are made of a fire-proof water-proof canvas. There are also inner and outer coils of wire. The inner is practically imbedded in the lining which cuts down frictional resistance, the outer is used to form a protective covering.

The use of this flexible piping is practically universal on English-built aircraft so there is no need to suggest that aircraft constructors should get in touch with Hobdell, Way and Co. Ltd. of 45, Church Street, Minories, London, E.1, who manufacture and sell Petro-Flex. There is interest however in noting that this piping can be and is used for a variety of other purposes, such as spray-painting. This latter is a process which is very much used in the aircraft industry and next time a reader has trouble with his spray-painting lines he should think of trying Petro-Flex.

SCINTILLA SUCCESSES.

When the extremely robust mechanism of the Scintilla magneto was described in THE AEROPLANE for Aug. 6 attention was drawn to the fact that its makers claim that every American aircraft to make the crossing of the Atlantic used these magnetos. They were also used by *The Southern Cross*. Now the *Question Mark* has achieved the first crossing from Paris to New York, thanks to Scintillas.

These magnetos were also used by Jackson and O'Brine in the *Greater St. Louis* when they increased the endurance record (with refuelling) to 27 days. Whatever else these flights prove, they certainly illustrate the staying power of the Scintilla.

Lastly, the winner of the *Giro Aereo* round Italy, Colonel Sacchi, had Scintilla magnetos on his 9-cylinder Walter engine in his Breda monoplane.

THE BRITISH ASSOCIATION AT THE BRISTOL WORKS.

On Sept. 5 about a hundred members of the British Association, which is holding its Annual Conference in Bristol, visited the works of the Bristol Aeroplane Co. Ltd. to inspect the latest practice in applied science. The visitors were highly interested in all that was shown them, and expressed their keen appreciation of the way in which the latest scientific research and knowledge were applied in the construction of aircraft and aero engines.

For instance, the jigs in which Bristol Bulldog parts are built to ensure ease of assembly and absolute interchangeability, caused warm approval, and the general workshop routine and practice in both engine and aircraft works were regarded as models of their kind.

The scientific visitors were especially impressed with the strict and constant system of supervision and inspection and with the manner in which the latest scientific apparatus and knowledge was applied to ensuring that nothing but the best material and workmanship can be incorporated in a Bristol product.

Amongst the visitors were Wing Commander Cave-Browne-Cave, Professor Lee (Sheffield), Professor Sutton Pippard (Bristol), Professor A. Robertson (Bristol), Professor G. Stoney, and Professor Marchmont. On behalf of the party, before they left the works, Professor Lee expressed appreciation of what they had seen.

DIRECTIONAL RADIO.

Marconi's Wireless Telegraph Co. Ltd. write:—

Sir,—In Issue No. 8 of Volume 39 of THE AEROPLANE dated August 20, 1930, we read with great interest the article entitled: "British Airship Policy," by Major P. L. Teed. On page 462, however, we note that a statement is made as follows:—

"During daylight hours, with nil visibility, by means of directional wireless a certain degree of accuracy is obtainable. At night, when the wireless method is less precise, cloud height is generally such as to enable star observations to be obtainable from no great altitude."

In this connection we should like to say that although it is true that a short while ago a satisfactory wireless direction-finding service could not be guaranteed during darkness, this fact is not true to-day.

Within the last few months the Marconi-Adcock system of Direction Finding has been developed and tried out by this Company with conspicuous success, and is now available for general use: this system comprises a ground direction-finding receiver similar in many respects to that employed in the Marconi-Bellini-Tosi system but provided with an aerial and feeder system of special design. During daylight hours the accuracy of the service which can be provided is as great as, if not greater than, that of the Bellini-Tosi system, while at night, when the results obtained on the Bellini-Tosi system are liable to be misleading, extremely accurate results can be obtained with the Marconi-Adcock system.

The existence of this new system is gradually becoming known in aeronautical circles, and in view of the fact that your journal is always keenly interested in advances in the science of aeronautics, we have taken the liberty of writing you on this subject with a view to correcting the false impression which might be given from a perusal of the article in question.

For Marconi's Wireless Telegraph Co. Ltd.,
(Signed) J. M. FURNIVAL.
Chief of Field and Air Division.

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C D Barnard

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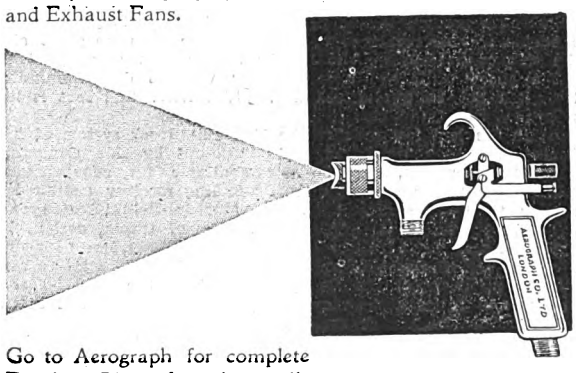

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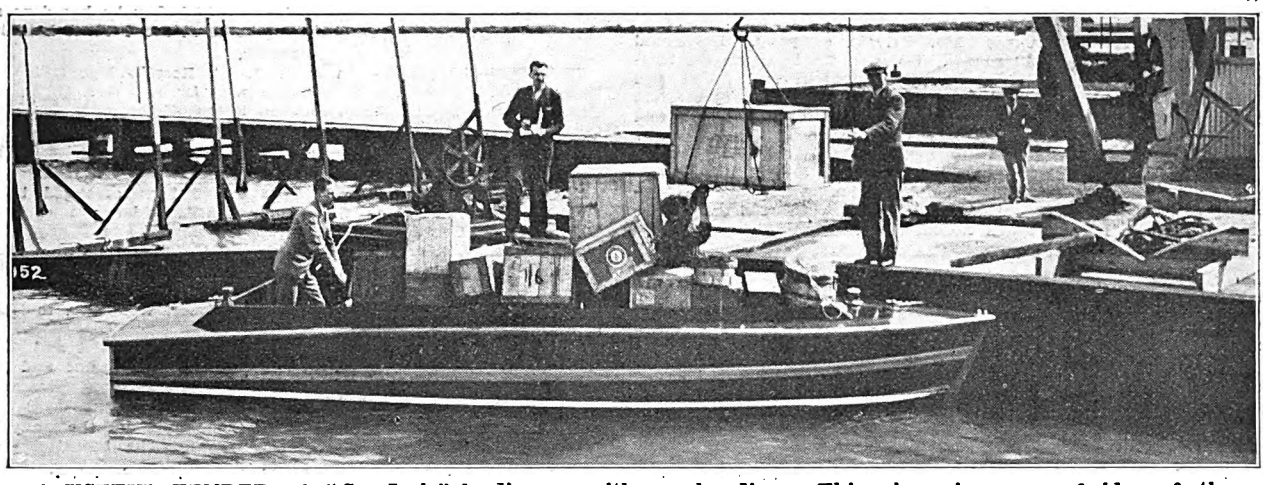

A USEFUL TENDER.—A "Sea-Jack" loading up with merchandise. This view gives a good idea of the carrying capacity of this craft.

A BRITISH VICTORY.

His friends in the British Aircraft Industry will be glad to congratulate Mr. Hubert Scott-Paine, who was so long Managing Director of the Supermarine Aviation Works, and is still a Director of Imperial Airways Ltd., on winning *The Detroit News* International Trophy for racing motor-boats of the 5½-litre class. The adoption of various principles of aircraft structural methods in his boat, *Miss Britain I,* make his victory all the more interesting to the Industry.

According to the report in *The Times* the race, which was held at Detroit, was in three heats. In the first *Phantom* was leading, but sank in the fifth of the six laps. *Miss Britain I,* which was following, went to the assistance of the men in the water and was passed by the third boat, *Baby Minchas.* In a thoroughly sporting manner the heat was declared off by the Committee, as Mr. Paine had lost his place through going to the help of the first boat.

The re-run first heat was won by Mr. Paine in a walk-over, *Phantom* won the second and third heats, and *Miss Britain I* was second in both. These two seconds with the win in the first heat gave Mr. Paine enough points to secure the Trophy.

THE "SEA-JACK."

Mr. Hubert Scott-Paine, who was largely responsible for the success of the Supermarine Aviation Works, both in Mr. Pemberton Billing's days and afterwards, is now the Proprietor of the British Power Boat Co. of Hythe, Southampton. There he produced for Mr. Henry Segrave (before he was knighted) the famous *Miss England,* the fastest single-engined boat in the World. Now he has gone to the other extreme and he has produced the first sea lorry.

This is a 23-foot fast general utility boat, which he calls the *Sea Jack,* and it has a guaranteed speed of 26 m.p.h. This speed hardly gives one the impression of a lorry, even on the road. But if Mr. Scott Paine says that the *Sea-Jack* does it, it most emphatically does.

The immediate interest of the *Sea-Jack* to readers of THE AEROPLANE is that it is recommended as being particularly useful as a seaplane tender. One of them has already been bought by Short Brothers of Rochester, who are now so busy on a number of big flying-boats that a tender of the capabilities of the *Sea-Jack* is happily worth their while. Mr. Scott Paine suggests that the boat is also suitable for a river police boat, an express fire float, a water taxi, or an ambulance boat.

The craft is by no means only a river boat. It is fully seaworthy and combines robust construction with its high speed. And, being a thoroughly domesticated person, Mr. Scott-Paine suggests its usefulness as a tender to a yacht so that earlier supplies of milk, newspapers and stores can be got in the morning. The boat has all kinds of special hydrodynamic qualities which cannot be discussed in this paper. But the British Power Boat Co. will be glad to tell readers of THE AEROPLANE all about it.

THE "SEA-JACK."—Built by the British Power Boat Co. and used by Short Bros. Ltd. at Rochester. In the background is the Short Valetta three-engined seaplane.

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PERSONAL NOTICES.

Deaths.

COOPER.—On Sept. 3, at Aqra, 'Iraq, as the result of a flying accident, L-AC. James Cooper, R.A.F.

SUTTON.—On Sept. 3, in Lake Ontario, as the result of a flying accident, Charles Sutton, Flg. Off., R.A.F.O., the Fairchild Aerial Surveys Company.

Mr. Sutton served in the R.A.F. during the War 1914-18, and retired with the rank of Flight Lieutenant. He rejoined the Service in 1922 and served with No. 1 (Fighter) Squadron, and No. 70 (Bomber) Squadron in 'Iraq. He was placed on the Reserve in October 1926 and shortly afterwards took up an appointment with the Fairchild Aerial Survey Company of Canada, with which firm he has done some excellent work. He was killed during races at the Toronto Exhibition.

Marriage.

THOMSON—JOUBERT.—On Sept. 3, at Rosyth, Flg. Off. George Valentine T. Thomson, R.A.F., elder son of Dr. and Mrs. G. Thomson, Canford Cliffs, Bournemouth, to Jean Eileen Fisher, only daughter of the late Dr. S. W. Joubert, of Harrismith, South Africa, and Mrs. Joubert, of Viewsforth Terrace, Aberdeen.

Forthcoming Marriage.

CHICHESTER—BARNES.—A marriage has been arranged between Flt. Lt. Patrick George Chichester, R.A.F., elder son of George Chichester, of Chelfham, Stoke Rivers, N. Devon, and Gladys Evelyn Vesta Clemency, elder daughter of William C. Barnes and Mrs. Barnes, of 45, Higher Summerlands, Exeter.

Births.

CHURCH.—On Aug. 24, at Chalcombe House, Wendover, to Flt. Lt. and Mrs. Church—a daughter.

ELY.—On Sept. 2, at Hessle Nursing Home, to Violet and Gilbert C. F. Ely (Publicity Manager of the Blackburn Aeroplane and Motor Co. Ltd.)—a daughter.

Thanks.

Mrs. C. G. Colebrook wishes to return thanks for the many kind letters of sympathy she has received and for the beautiful flowers which were sent to the funeral of her husband. They are too numerous to acknowledge personally, and she hopes that her friends will accept this expression of her gratitude.

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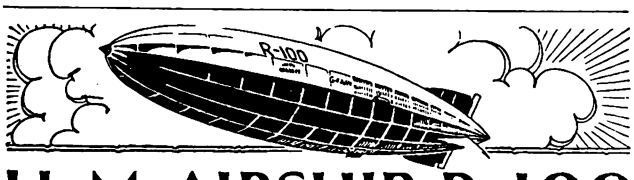

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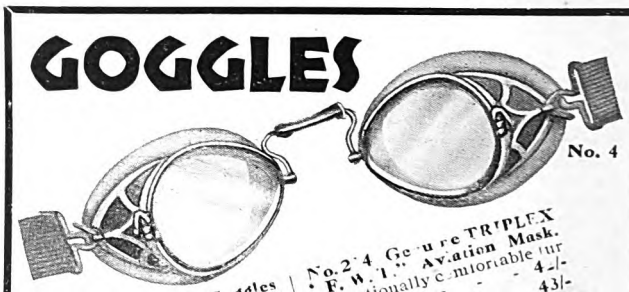
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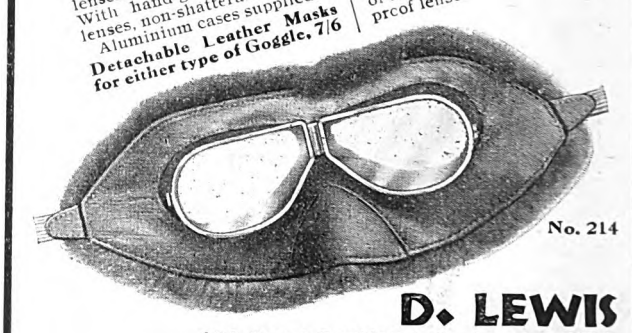
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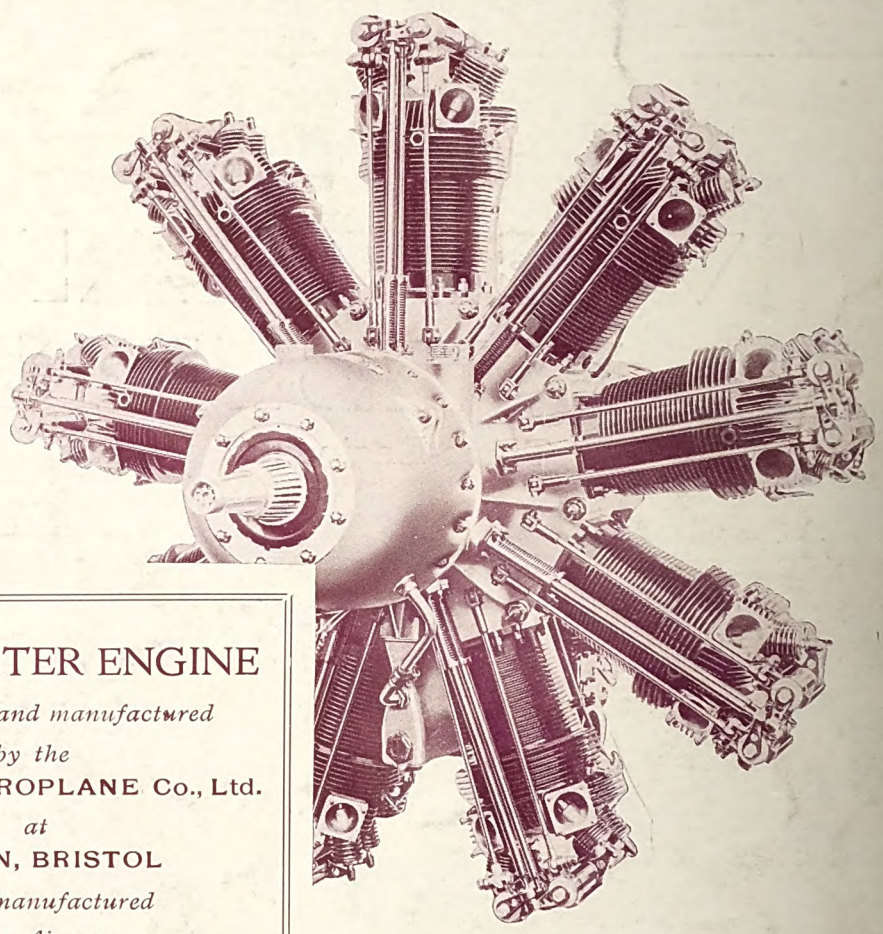

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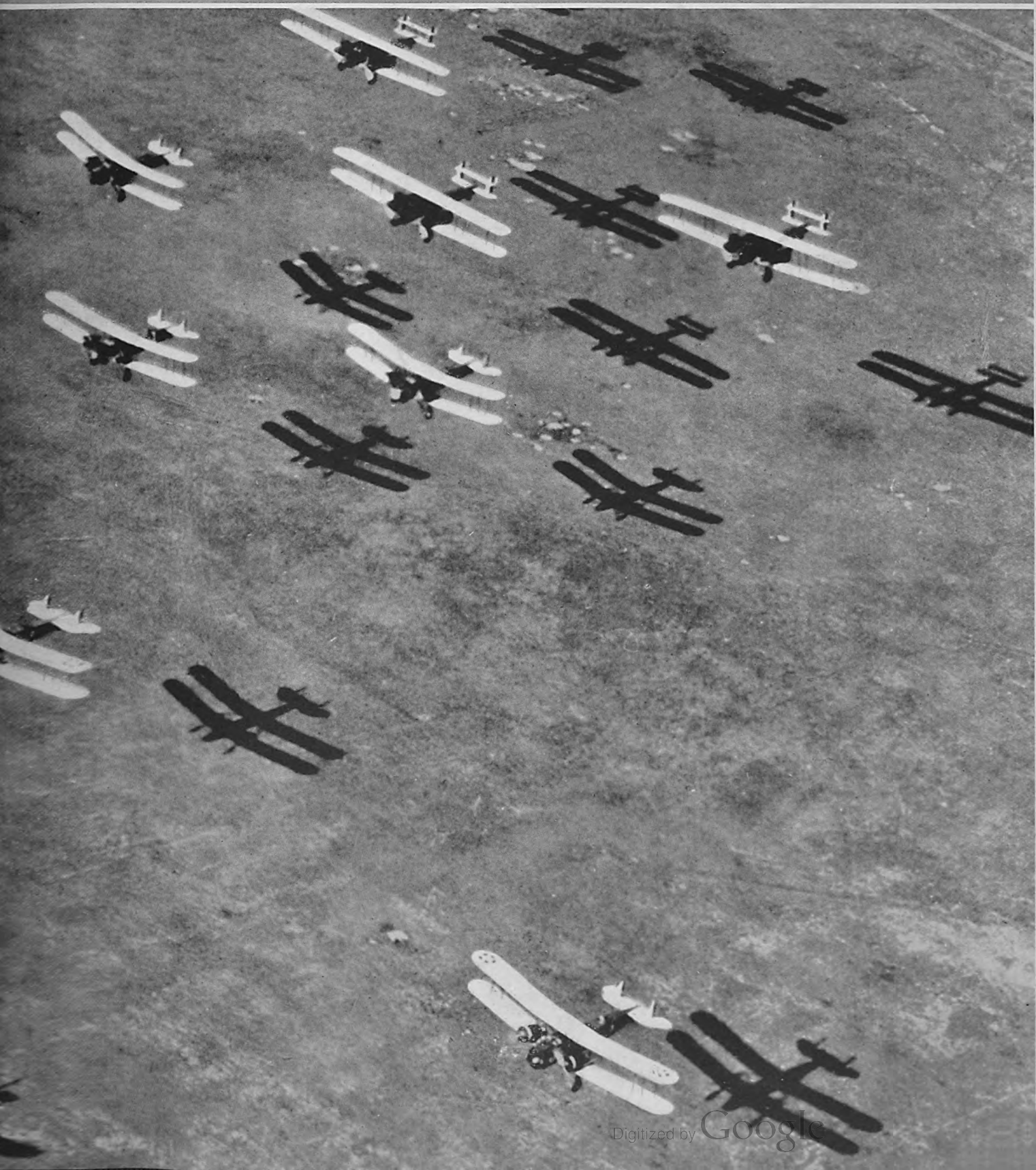
6d. Weekly.

INCORPORATING AERONAUTICAL ENGINEERING

Edited by C.G.Grey



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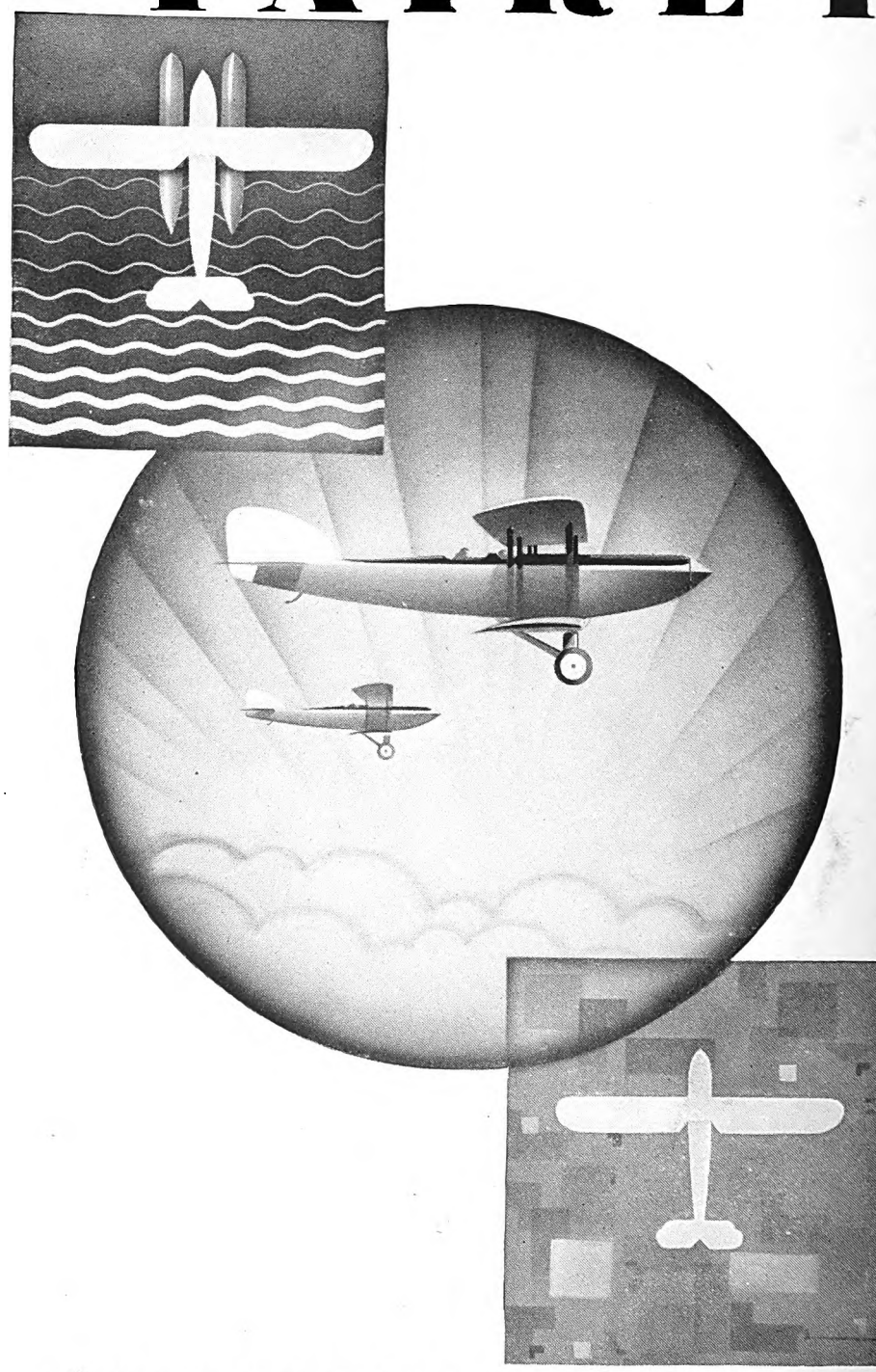

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SEPT. 17, 1930.

THE AEROPLANE

Incorporating Aeronautical Engineering

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ON AFFAIRS OF THE MOMENT.

AIR MAIL EFFICIENCY.

We have had a very good example in THE AEROPLANE office this week of the genuine efficacy of air mails. A letter was sent on Aug. 22 to Mr. Raoul C. Hudson, of Santiago, one of the best-known men in Chilean Aviation. It went by air mail, which means the *Compagnie Générale Aéropostale,* from Paris to St. Louis on the African coast and from Port Natal, Brazil, to Buenos Aires and thence over the Andes to Chile. Mr. Hudson received the letter on Sept. 4, answered it by the same post and the answer arrived at this office on the morning of Sept. 15.

That is to say, the out and home journey took twenty-two days allowing that the letter only left on the night of Aug. 22 and that the reply arrived in London on the night of Sept. 14. Considering that a letter sent by boat takes twenty days to get to Buenos Aires alone, which is about three-quarters of the single journey, the difference is distinctly worth noting.

The difference is further emphasised by the fact that in his letter Mr. Hudson says that the Trans-Andean Railway was blocked by snow for the last two weeks (September being about the end of the South American Winter) and therefore ordinary mail by that route would be very much delayed, though the air mail evidently got over all right in each direction.

In discussing this performance with a somewhat hostile critic of air mails the objection was raised that people do not use air mails to any great extent because on all air mail routes so many letters are lost, and that more are lost on the Aéropostale route to South America than on most other lines.

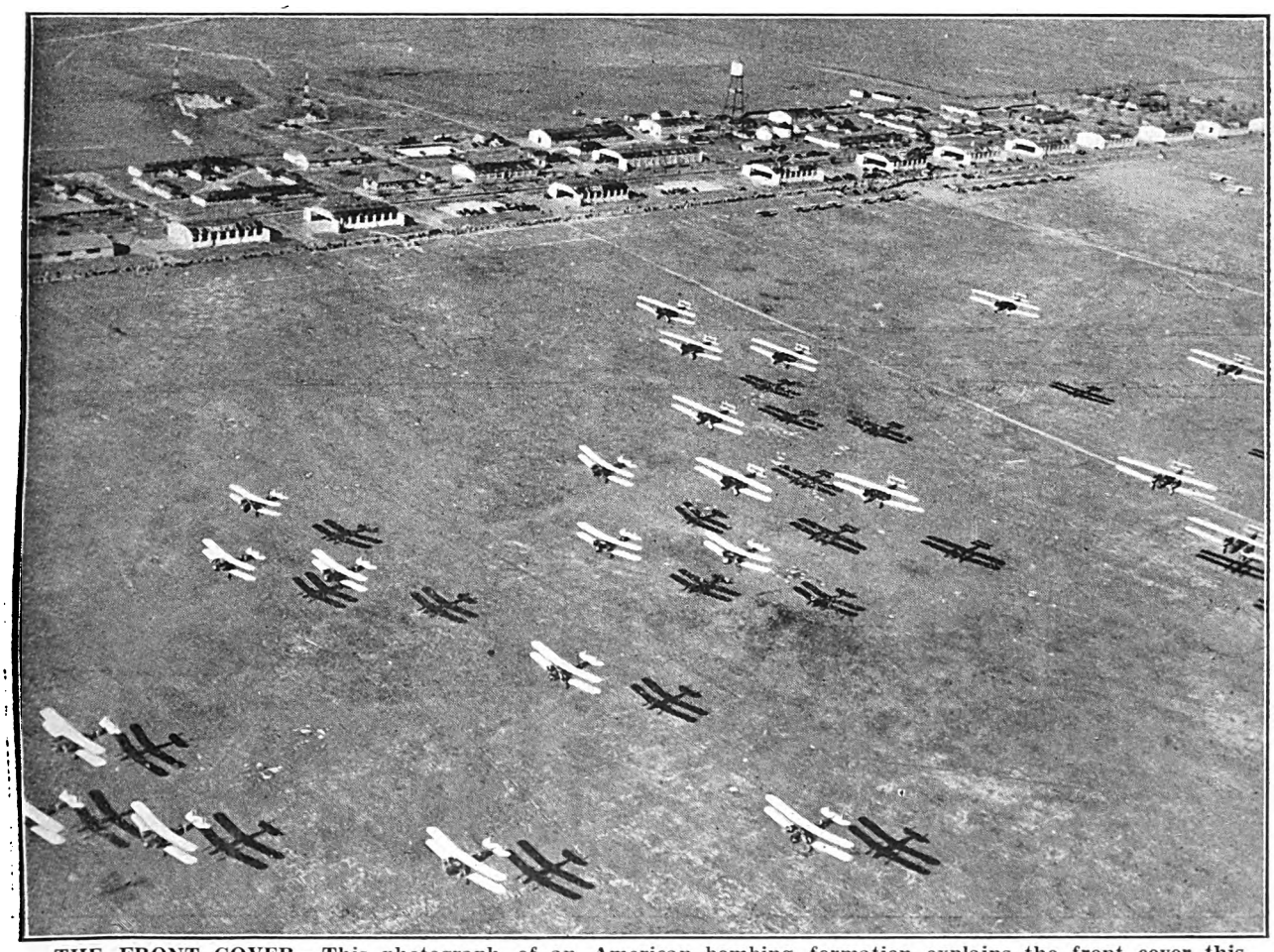
Perhaps somebody who is in a position to know the facts will be good enough to let us know what proportion of air mails are actually lost. Even if the losses all round are as high as 10%, air mail is still worth using, because the saving in time is so enormous. And in any case duplicate letters can be, and should be, sent by ordinary boat and rail method so as to have a check on the deliveries. People who live in the Far East habitually send two copies of their letters, one by rail across Siberia and through Russia, which saves several days, and one by ordinary boat service in case a counter revolution in Soviet Russia or any other outbreak destroys the trans-Siberian mail. So that actually duplication of letters by air mail is only doing what is commonly done when there are alternative methods of land and water transport.

THE SCHNEIDER IMBROGLIO—IV.

The argument about whether the Italian and French entries for the Schneider Trophy Contest to be held next year are orthodox or not was carried a stage further at a meet-

"STRANGE TO RELATE; BUT WONDERFULLY TRUE, THAT EVEN SHADOWS HAVE THEIR SHADOWS TOO."

(CHURCHILL—*Rosciad V., 411.*)



THE FRONT COVER.—This photograph of an American bombing formation explains the front cover this week. **The same picture was used in July, in brown, and is repeated this week so that this explanation of what seems to be a freak picture may go with it. Also this picture gives an idea of how the U.S. Army Air Corps uses its opportunities of creating good propaganda.**

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ing of the Governing Committee of the *Fédération Aéronautique Internationale* which met in Paris on Friday, Sept. 12, Lieut.-Colonel Mervyn O'Gorman, C.B., represented the Royal Aero Club of Great Britain. General Piccio represented Italy.

Col. O'Gorman reiterated the arguments set forth in this paper several months ago to the effect that the *Fédération* has no right to alter the rules of an international competition during the period covered by the regulations made for that particular year's competition.

General Piccio argued that the Governing Committee of the *Fédération* has the right to alter the rules whenever they like. And the French representative supported him.

On Friday evening, the Governing Committee issued a statement to the effect that the Sports Committee of the *Fédération* have the right to constitute and call together if necessary a Tribunal of International Appeal. And it asked the Sports Committee to act accordingly.

That is exactly what we, in this country, would most desire. So long as the International Arbitration Tribunal does not allow itself to be packed by Italians or French or to have its decision biassed by Italian or French agitation, all will be well. The arguments of the Royal Aero Club are absolutely unassailable by any standard of international sport. At any rate, there is now reasonable prospect of the Contest being held over British waters next year, and so the immediate thing to do is for somebody in this country to take definite steps about finding the money to put up a representative British team to defend the Trophy.

According to report, the French Air Ministry has already detailed thirty pilots to go into training so that a team may be selected from among them. This is the method which was adopted in this country three years ago, when the High Speed Flight at the Marine Aircraft Experimental Establishment at Felixstowe was organised.

Our High Speed Flight still exists, but the Air Ministry has definitely announced that it will have no part in any future contest for the Schneider Trophy. Therefore, the High Speed Flight as at present made up may be left out of consideration, barring the possibility that if some rich man, or men, decided to put up the money to provide a British team for next year, pilots belonging to the High Speed Flight may conceivably be allowed to go on half-pay while they are employed as members of the British Team.

There has been a good deal written at one time or another about the iniquity of using Service pilots in these international contests. The idea has been put forward that civilian pilots should be given the opportunity of distinguishing themselves. But we are up against the fact that there are no high-speed civil seaplanes in existence, and that none of our civil pilots has had any real experience of flying at very high speeds, with the possible exception of the test pilots of firms like the Hawker Company and the Fairey Company, who have built high speed land machines. And one doubts whether the pilots themselves, or at any rate, the firms who employ them, would care about their putting in time flying purely experimental high speed seaplanes, when they ought to be at their regular job of testing new types for their firm.

There are undoubtedly better fish in the sea than ever came out of it, and for this reason possibly there may be ordinary amateur club-trained pilots who are even better than any of our professional test pilots, or any of our Air Force pilots. But the difficulty would be to find anybody who would be willing to spend the money in discovering such pilots and paying for their training up to the point of being good enough to fly in the Schneider Contests. Therefore at the finish we come back to the Air Force pilots for this particular work. If members of the High Speed Flight cannot be allowed to go on half pay then the only alternative seems to be to discover short service officers whose time has just expired who have had experience of these very high speed machines.

We may naturally assume that the Regia Aeronautica will detail as many pilots as may be needed to make the Italian team. Signor Mussolini and his right hand man aeronautically, Generally Balbo, have evidently determined to have the Schneider Trophy back in Italy, and, as already pointed out, where a country rejoices in a Dictator the question of expense never troubles anybody. There will be plenty of money in Italy both for building new machines and for keeping pilots in training and replacing any who happen to be killed flying freak experimental machines.

A rumour says that the French will also produce several new types of machine for the contest. We know that they did build special machines for last year's contest, and that none of them were in flying order at the time. Possibly they will be content to develop those same types for next year.

What we in this country are going to do about it, will probably be decided about next January. If we started it now we could undoubtedly design new and improved types of machine and engine, which would beat anything that we had last year. But, we shall probably argue about who is going to put up the money for the Contest until just about Christmas time. And we shall possibly end by taking over from the Air Ministry the machines which were built for the Contest last year. And we shall probably modify them and squeeze a bit more power out of the engine, and enter them for the Contest next year.

Also we shall certainly have all the old arguments again about where the race is to be flown. Already silly arguments have been put up against Southampton Water. And the Admiralty has announced that it will not allow air racing over Southampton Water. In spite of all that Southampton Water with a properly arranged course is undoubtedly the proper place for the Contest.

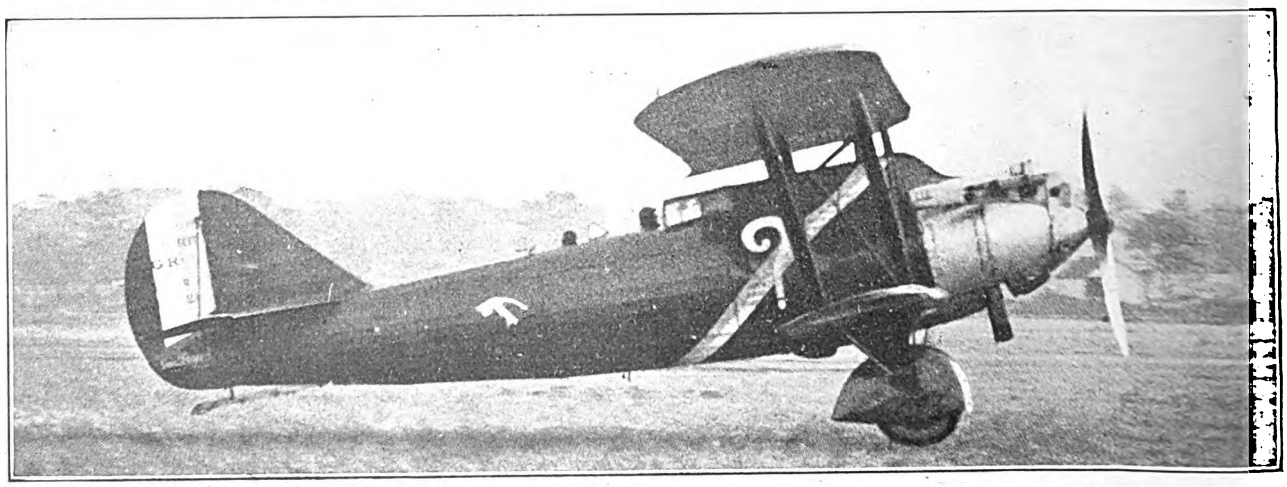
OFFICIOUSNESS.

On Sept. 10 Mr. Leo George Kirschner was fined 30s. at Southend Police Court for failing to produce his pilot's licence when called upon to do so by a police constable under the Air Navigation Act. The police constable said that on July 7 he was called to a field where an Avro aeroplane was standing on its nose with a broken airscrew and undercarriage. He asked Kirschner for his licence, and it was not produced. Later, when the police constable called at Kirschner's lodgings on Canvey Island he was told that he had gone back to London.

Kirschner pleaded guilty to a technical offence, and said that he had merely left his licence at his lodgings when he changed into his flying clothes.

The whole thing strikes one as being a piece of entirely unnecessary officiousness on the part of the police, and of the usual exercise of a little brief authority on the part of the bench of magistrates. The same thing used to happen in the old days of motoring, when people used to be fined for not having their driving licences on their persons. When motoring became more popular and people became more enlightened the law was altered so that anybody charged with an offence under the Motoring Laws was only required to produce his licence in court when called upon.

Carrying licences always results in the licence being lost at some time or another. Certainly one has lost five or six



PARIS—NEW YORK.—The Bréguet "Question Mark" in which MM. Costes and Bellonte made the first non-stop flight from Europe to the United States,—with British K.L.G. Plugs to make sure of non-stopping.

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The only non-stop flight from England to India was carried out with a Napier-engined aeroplane.

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licences in the course of some thirty years' motoring. But if those licences had been kept at home ready to be produced when demanded, they would not have been lost. The same thing is bound to happen in connection with aviation. And, certainly, omitting to carry a licence should not be a legal offence.—C. G. G.

FOR THE NOT-SO-YOUNG IDEA.

One of the most general enquiries made at this office is that of the young man who wants to enter Aviation and is not sure how to set about it. He is being more and more catered for as the years go by, and as the Aircraft Industry realises that it needs better and more expensively trained personnel. So long ago as 1920 a department of Aeronautics was established at the Imperial College of Science and Technology, South Kensington.

This School of Aeronautical Science is in the main for post-graduate students, who are expected to have passed through a systematic training in Physics, or one of the branches of Engineering, preferably mechanical. They should have a fairly high standard in mathematics. They should have graduated A.R.C.S., or B.Sc., or have attained a recognised equivalent standard. A complete course of lectures and laboratory work is given each year. There are two main branches, aerodynamics, design and construction, or aero engines.

Lectures in Aerodynamics by Professor Bairstow will be given twice a week and experiments in the Wind Channel will be made once a week. There are lectures on design, with work in the drawing office. Lectures and classes on materials of aircraft construction are given by Assistant-Professor Hill. Mr. Farren lectures twice a week on the construction and strength of aircraft. Lectures and laboratory work on the design of Engines are taken care of by Dr. Moss and Mr. Stern. There is a course of fifteen weekly lectures on Airships by Mr. Richmond. Mr. Rowe is in charge of Air Navigation and Aircraft Instruments. Meteorology is in the care of Professor Sir Gilbert Walker.

THE COSMIC SPHERE.

Professor Peccard, of Brussels University, who is presumably a confrère of Dr. Strabismus (Whom God Preserve) of Utrecht, has so far failed in his attempt to ascend to 60,000 ft. in a balloon to investigate the action of cosmic rays in the upper atmosphere.

On Sept. 14, at Augsberg, Bavaria, an attempt was made to induce his balloon to rise. This balloon has suspended below it an aluminium sphere wherein is placed a large amount of instrumental impedimenta necessary for the investigations. It also is arranged to accommodate Professor Peccard and his assistant M. Kipfer, who can seal the sphere hermetically from the inside. Liquid and compressed oxygen are carried, and this with the necessary inhaling apparatus and the instruments mentioned above make it necessary for the two occupants to carry what food they require in specially designed hats.

Shortly after 08.00 hrs. the Professor and his assistant took affectionate farewells of their respective families and took their places in the sphere. It was then sealed from the inside. Their next communication from the outside world was a series of knocks on the walls of the sphere, in answer to which they opened the porthole to find that the balloon was still *in situ* in Augsberg.

OFFICIAL ENGLISH.

A keen student of the English Language, resident in Chicago, writes:—

The Aug. 20 THE AEROPLANE arrived to-day, two days ahead of schedule, and I particularly enjoyed the section on official language. This recalls some remarks your own Gen. Sir Ian Hamilton made not long after the War:—

I wrote cables of which I may at least say they are descriptive as far as official phraseology will permit, and they are turned by some miserable people somewhere into horrible bureaucratic clichés or dead languages, i.e., "We have made an appreciable advance," "The situation remains unchanged," and similar goddamned phrases.

Quoting that, Don Marquis, then the beloved conductor of the "Sun Dial," a column in *The New York Sun*, wrote a "Ballade of Goddamned Phrases," which follows:—

What a high official has told
I am not permitted to state,
His name I am forced to withhold,
But his views have a certain weight,
And I think at no distant date,
We may look for some novel phases,
For he spoke of "Ironical Fate,"
And similar goddamned phrases.

What glitters may not be gold,
So caution's a canny trait—
As Solomon said of old.
Prophecy, sad to relate,
May even betray the great,
So my friend remarks, "No praises
Till the facts eventuate!!
And similar goddamned phrases.

But at least I may make so bold
As to hint that I have it straight
That developments may unfold
At an unprecedented rate,
And my friend, I may intimate,
Has a grasp of the thing that amazes,
For he says, "It is on the slate."
And similar goddamned phrases.

Envoy.

General, let us not hate!
For we're most of us guilty as blazes.
With clichés you're stiff as a gate,—
And similar goddamned phrases.

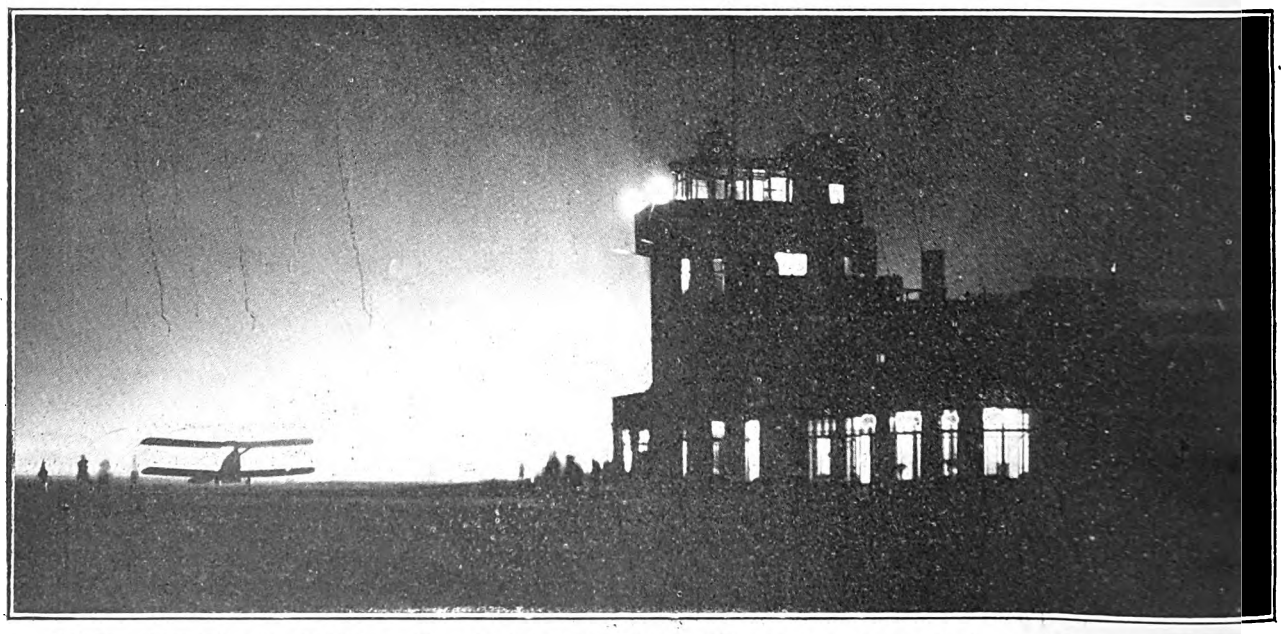
THE R.101.

The additional 50 ft. of length inserted amidships in the R.101 has been completed, and the ship now has a capacity of 5,500,000 cubic feet. But although the capacity has been increased by half-a-million cubic feet the accommodation for passengers has been reduced from 100 to 52.

The Air Ministry Authorities expect that she will be taken from her shed at Cardington any time after Sept. 18 for local trials in preparation for her flight to Egypt and India.

Lieut. Cdr. W. H. Watt, of the Royal Airship Works, has arrived at Karachi airship base to complete the preparations for the reception of the R.101. He has taken up the duties of officer in charge of the base and the civil aerodrome.

All of which sounds optimistic, and we can only hope that we may be wrong in believing that she will get no further than Egypt at the first attempt.



NIGHT FLYING AT HESTON.—The Social Focus during the manœuvres described elsewhere in this issue.

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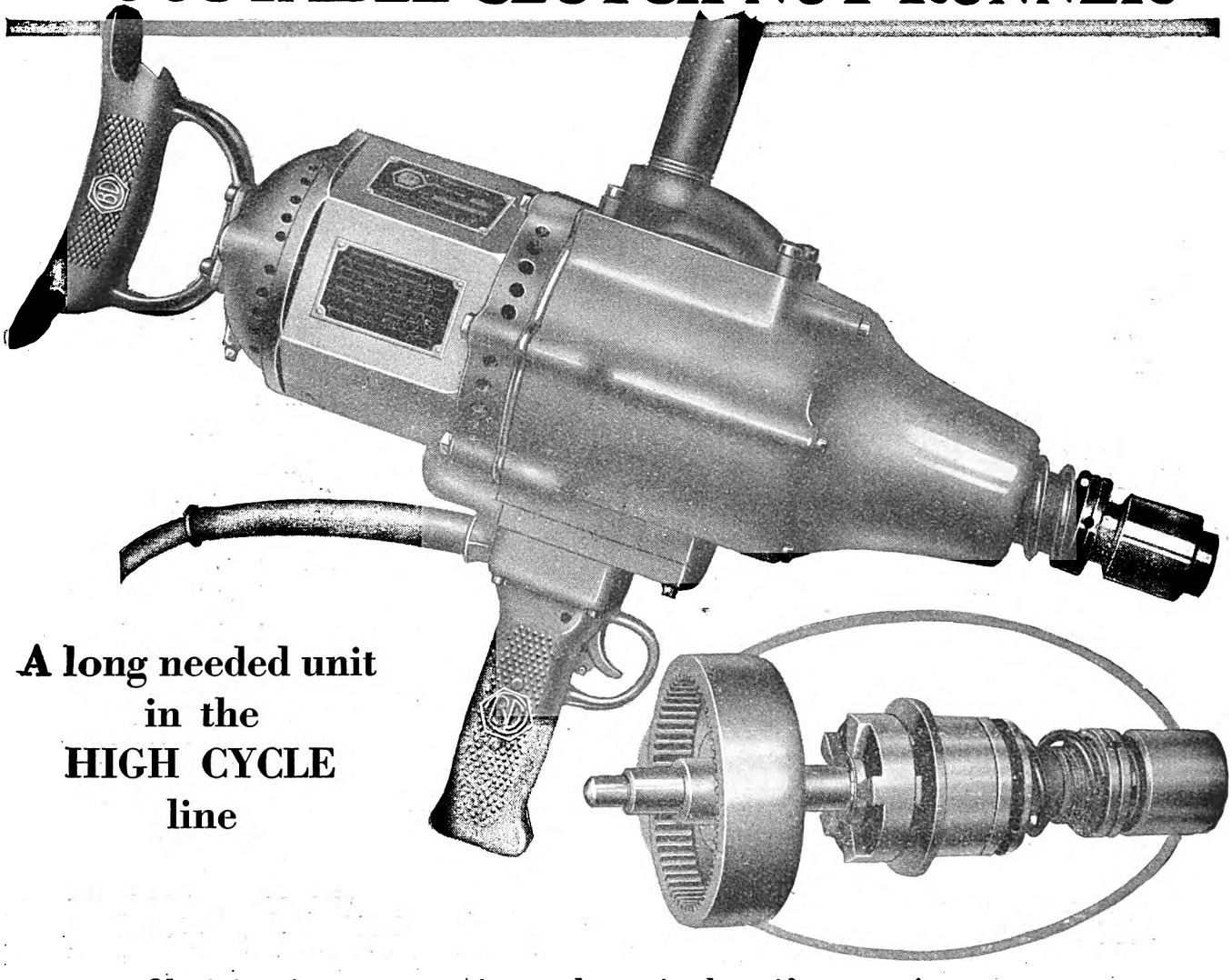

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THE SABENA ACCIDENT.

On Sept. 11 some millions of English people first heard of the Belgian Airlines, or *Sabena* (*Société Anonyme d'Exploitation de la Navigation Aérienne*). It was just before dawn on that day that this company sustained the first break in a six years' record of service without any fatal accidents, and MM. Edouard Sobry and Fernand Cooremans met death in the exercise of their duty.

The daily Press rose to the occasion and gave the fullest and grimmest details of everything that happened, and many things that could not have happened, to the ill-fated machine and its crew. And, lacking the materials of more sensation, described sequences of happenings which varied with each publication and considerably transcended truth in nearly all.

The name of Edouard Sobry, who was 27 years of age at the time of his death, has appeared before in these columns. We personally had the pleasure of travelling in the Brussels Night Mail with him and remember vividly the occasion when he stood below in the floodlight and called up to us in the control tower that it was time to go. He had flown several hundred hours with *Sabena* over a period of six years, and on the night of the accident was actually on an exchange of duties with Chief Pilot P. Cocquyt.

M. Fernand Cooremans, the engineer, was a married man, 24 years of age.

The night mail was started four months ago between Brussels and London, and the nightly trip in each direction had so far been made with scarcely a lapse and without any more untoward incident than on a memorable occasion when the citizens of Maidstone were kept awake all night by a *Sabena* night mail circling within a ring of fog for two hours. Sometimes the weather conditions delayed the start, and so it was on Sept. 11.

Visibility was very low at Croydon all night, and M. Sobry waited until the incoming machine from Brussels landed at about 02.30 hours to get a report before taking off. When he heard that the route was clearer towards the coast he decided to start and, presumably, to fly blind until out of the thick weather region. His instruments and wireless were such that this would not be an extraordinary proceeding nor especially difficult to a pilot of his experience.

A minute or two later he had crashed in a field near Wallington. The Fokker (three Bristol Titans) was a complete wreck, both the occupants were killed, and the scattered wreckage caught fire almost immediately.

The usual eye-witness stories were assiduously given forth in the newspapers—with the usual mass of unreliable detail. A "queer blue light" had been seen by one, who seems actually to have noticed the exhaust from one of the engines. Another, who obviously had better imagination, reported that the machine "exploded in mid-air," and still another credited the pilot with restarting his engines in order to avoid the houses. Many of the accounts included in their headlines the statement that the two men were burnt to death, even though the same papers say in their following columns that they were thrown out and killed instantly.

The cause of the accident has not been established yet, but any "mystery" stories will be discounted by those who know anything about aeroplanes. Unfortunately, in the present stage of aeronautical engineering, nothing that happened to M. Sobry and his comrade need be any harder to explain than by collision with an obstruction, or the ground, on a foggy night. Contributory causes may or may not be suspected or proven, but the moment of take-off is the most dangerous of most flights, and is doubly so when visibility is practically nil.

The bodies of the two men have been taken to Brussels by air for burial.

The official announcement by the Belgian Air Lines (*Sabena*) on the evening of Sept. 11 read as follows:—

The Belgian Air Lines (Sabena) regret to announce that a fatal accident occurred to their outward bound night postal service aircraft OO—AIN, which left Croydon at 02.15 this morning, involving the deaths of the two people on board, Edouard Sobry, single (27), and the mechanic, Fernand Cooremans, married (24). The accident occurred at approximately 2.19 a.m., the aeroplane striking the ground in a field adjoining the aerodrome and the remains of the aeroplane igniting some moments afterwards. No reason can yet be advanced as to the cause of the accident. Major Cooper, in charge of the accidents branch of the Air Ministry, has taken charge of the investigations. This is the first fatal accident which has occurred to the company's aircraft since the inauguration of the company in 1924.

JAPAN TOWARDS AMERICA.

At 05.00 hrs. on Sept. 14, Messrs. Bromley and Gatty left Aomori, Japan, in an Emsco monoplane named *City of Tacoma* in an attempt to fly across the Pacific to Tacoma, Wash., U.S.A.

They got lost in fog in the Kuriles and turned back. At dawn on Sept. 15 they had landed again at Cape Shiriya, near Aomori, their point of departure.

AERO-ENGINE REQUIREMENTS IN THE U.S.A.

The general trend of development in aero-engines in the United States points to a reversion towards water-cooled engines for military and commercial use.

The U.S. Government has, through the Army Experimental Section at Wright Field, sent an Army engineer round to all the different Air Transport companies to find out what types of engines are likely to be wanted in the future. On the result of his investigations the authorities have taken an average of the requirements and boiled them down to a general specification which has been circulated to all aero-engine builders.

The following are briefly the requirements outlined in this specification:—

Three types of engines are needed; a 600 h.p. six-cylinder in-line; a 1,000 h.p. twelve-cylinder Vee; and a 1,500 h.p. eighteen-cylinder broad-arrow, to be worked into a series with interchangeable parts.

The 1,000 h.p. engine is most desired and this should have the following specification:—

1,000 h.p. at 2,800-3,400 r.p.m. with a maximum weight of 1,000 lbs. It should have a geared 2:1 or 5:3 two-stage turbo supercharger, a 6:1 compression ratio, an M.E.P. of 175-195, a displacement of .5 h.p. per cub in., roller main bearings, forked connecting-rods and it should be Prestone-cooled.

The Army Air Corps is about to give out tenders for an aero-engine for military use to be built to the following specification: A 50 degree twelve-cylinder Vee engine to give 1,150 h.p. at 3,300 r.p.m. and 1,000 h.p. at 2,700 r.p.m. The cooling medium to be Diethylene Glycol with water added to give a boiling point of 340-360 degrees Fahrenheit and a jacket outlet temperature of 300 degrees F. The maximum fuel consumption to be .45 lbs. per b.h.p./hr. and .5 lbs. per b.h.p./hr. at 1,150 h.p. at 3,300 r.p.m. The maximum oil consumption to be .025 lbs. per b.h.p./hr. The maximum weight to be 1,100 lbs., and the displacement to be 1,600 cub. ins.

The engine to have two inlet and two exhaust valves per cylinder, the exhaust valves to be salt-cooled and to have stems of ½ in. minimum diameter. The valve area is to be large in order to minimise the pressure drop through them and to prevent the compression ratio from being affected. Valve-seat inserts of Austenitic Nickel Chrome steel are recommended. Nitrided valves are not to be used if the products of the combustion touch them. The valve area must not be obtained at the expense of the structural weakness or cooling of the heads.

A suction turbo supercharger of the centrifugal type placed above the carburetter is desired.

The fuel for this engine, containing 6 cc. of Tetra-ethyl lead per U.S. gallon must not corrode the valve seats or guides.

The U.S. War Department circular which contained the above specification expresses the opinion that the U.S.A. is now definitely behind Europe in aero-engine development. The U.S. Government looks to the American Industry to produce something that can compare favourably with the Rolls-Royce "R," etc., and they reason that if Europe can produce such engines then the U.S.A. should be able to do better.

As the result of the merger between the Curtiss and Wright companies it is the intention of the Curtiss-Wright group to close the Buffalo engine works of the Curtiss Company and to transfer the production of the Curtiss range of engines to the Paterson works of the Wright Company. Mr. Arthur Nutt, the chief engineer of the Curtiss Company, will be placed in charge of the united works.

The Curtiss Company are, in the meantime, experimenting with air-cooled cylinder barrels and Prestone-cooled cylinder-heads on their V-1550 12-cylinder Vee engine with a view to reducing the weight of the engine.

The U.S. Department of Commerce is recommending petrol with 6 cc. of Ethyl per U.S. gallon for commercial aviation use.

AN ACCIDENT IN CZECHOSLOVAKIA.

On Aug. 22 a trimotor Ford belonging to the Czechoslovakian State Air Line, running on the Prague-Bratislava daily service was caught by bad weather. The pilot in trying to make a forced landing flew into a house in the middle of the town of Friedrichsdorf and the machine and the building caught fire.

The pilot and four passengers were killed outright, and six others died before reaching hospital. Two other passengers were gravely injured and one was only slightly injured.

The foregoing account is founded on information supplied by the Vienna correspondent of *The Times*.

The brighter papers point out that there were thirteen passengers and that it happened on a Friday but these are the only points concerning which they are at all consistent.

According to the Vienna correspondent of *The Daily Mail* an official commission has decided that lightning struck the aeroplane when it was at a height of 2,000 ft.

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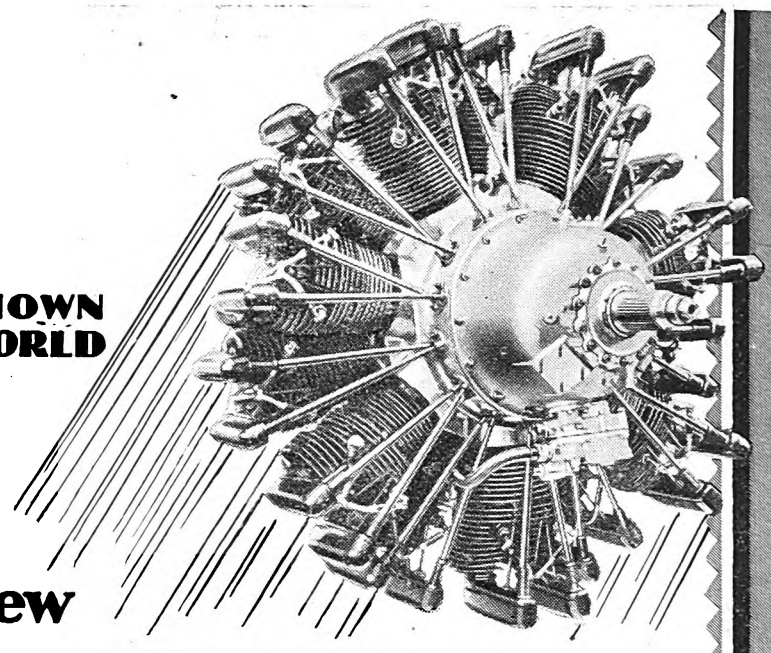

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THE ROYAL AIR FORCE.

The London Gazette.

Air Ministry, September 9.

ROYAL AIR FORCE.

GENERAL DUTIES BRANCH.—Capt. A. C. Cuming is granted a S.S. comn. as a Flt. Lt. on the Supplementary List (Aug. 25). Lt. G. C. Dickins, R.N., is reattached to the R.A.F. as a Flg. Off. with effect from Aug. 25, 1930, and with seniority of April 27, 1925.

The undermentioned are promoted with effect from Sept. 10, 1930:—FLG. OFFS. TO BE FLT. LTS.—G. H. Huxham, C. R. Mason, P. Hill, G. V. T. Thomson.

Group Capt. R. E. C. Peirse, D.S.O., A.F.C., is placed on the half-pay list, Scale B (July 8, 1930, to Dec. 31, 1930, inclusive). Flg. Off. R. C. H. Monk is transferred to the Reserve, Class A (Aug. 30).

The S.S. comns. of the undermentioned Plt. Offs. on probation are terminated on cessation of duty (Sept. 10):—C. E. Alven, H. M. Chubb, G. Egerton-Hine, I. B. Hills-Spedding.

MEDICAL BRANCH.—194814 S-M., 1st Class. J. Holt is granted a perm. comn. as a Medical Quartermaster and Flg. Off. (Sept. 8). M. T. O'Reilly, M.B., B.Ch., is granted a S.S. comn. as a Flg. Off. for three years on the active list with effect from and with seniority of Aug. 18, 1930. A. W. Comber, M.R.C.S., L.R.C.P., is granted a temp. comn. as a Flt. Lt. with effect from and with seniority of Aug. 14, 1930.

Sq. Ldr. (Qmr.) H. Steele is placed on the retired list (Sept. 8).

Flt. Lt. G. T. O'Brien, L.R.C.P. and S., is transferred to the Reserve, Class D (ii) (Sept. 8).

The notification in the *Gazette* of Aug. 26, 1930, concerning Flt. Lt. C. W. Colley, L.R.C.P. and S., is cancelled.

DENTAL BRANCH.—Flt. Lt. W. D. Guyler, L.D.S. (temp. Capt., General List, Army, Dental Surgeon), is granted a non-perm. comn. as a Flt. Lt. (July 1).

MEMORANDUM.—The permission granted to Sec. Lt. A. E. Walsh to retain his rank is withdrawn on enlistment in the Army (Aug. 8).

RESERVE OF AIR FORCE OFFICERS.

GENERAL DUTIES BRANCH.—R. A. D. Foster is granted a comn. in Class A.A. (ii) as a Plt. Off. on probation (Aug. 27). E. H. Buxton is granted a comn. in Class A as a Plt. Off. on probation (Sept. 9). Flg. Off. R. A. Wills is transferred from Class A to Class C (Sept. 6). Flg. Off. H. J. Phillips is transferred from Class A.A. (ii) to Class C (Aug. 30). Flg. Off. A. E. Stewart relinquishes his comn. on completion of service (Sept. 2).

MEDICAL BRANCH.—Flt. Lt. J. A. Musgrave, D.P.H., relinquishes his comn. on completion of service (Aug. 17).

AUXILIARY AIR FORCE.

ACCOUNTANT BRANCH.—No. 602 (CITY OF GLASGOW) (BOMBER) SQUADRON.—Flg. Off. J. R. Stewart resigns his comn. (Aug. 19).

Appointments.

Week ending September 15.

Air Commodores P. F. M. Fellowes, D.S.O., to No. 23 Group H.Q., Grantham, on appointment as A.O.C., 6/9. P. B. Joubert de la Ferté, C.M.G., D.S.O., to R.A.F. Staff College, Andover, on appointment as Commandant, 7/9.

Group Captain W. L. Welsh, D.S.C., A.F.C., to M.A.E.E., Felixstowe, Supernumerary, pending posting overseas, 1/9.

Wing Commander A. C. Maund, C.B.E., D.S.O., to Air Ministry (D.O.I.), for Air Staff duties, 8/9.

Flight Lieutenants F. Wright, to R.A.F. Depot, Uxbridge, 9/9. J. H. Hargroves, to C.F.S., Wittering, 9/9. E. S. Steddy, to No. 21 Group H.Q., West Drayton, 15/9. S. J. Smetham, to Air Ministry (D.O.I.), 9/9. F. P. Smythies, to R.A.F. Base, Gosport, 7/9. B. Cheesman, M.B.E., to R.A.F. Base, Calshot, 1/9. H. I. Cozens, to Special Duty List, while employed with the British Arctic Air Route Expedition, 3/7. A. B. Woodhall, to No. 111 Sqdn., Hornchurch, 1/9. T. H. French, D.F.C., to No. 502 (Ulster) Sqdn., Aldergrove, 5/9. A. D. Davies, to No. 4 Sqdn., S. Farnborough, 11/9.

Flying Officers F. M. V. May, to No. 1 F.T.S., Netheravon, 1/9. L. J. Fitch, to No. 4 Sqdn., S. Farnborough, 4/9. G. M. Beattie, to R.A.F. Depot, Uxbridge, 11/8. C. M. Heard, to A. and G. School, Eastchurch, 2/9. T. M. Abraham, to A. and G. School, Eastchurch, 2/9. B. I. Carter, to No. 4 Stores Depot, Ruislip, 8/9. J. B. Veal, to C.F.S., Wittering, 9/9. G. R. Montgomery, to No. 99 Sqdn., Upper Heyford, 1/9. A. E. Louks, to R.A.F. Base, Gosport, 7/9. E. A. Airy and E. O. Wanliss, to No. 2 Sqdn., Manston, 9/9. A. O. Simpson, to No. 4 Sqdn., S. Farnborough, 9/9.

Pilot Officers G. F. Humphries, to No. 10 Sqdn., Upper Heyford, 1/9. G. M. Ievers, to No. 58 Sqdn., Worthy Down, 8/9. A. G. Teideman, to R.A.F. Base, Gosport, 7/9. S. H. Bell and I. N. Roome, to No. 2 Sqdn., Manston, 9/9. K. N. Sayers, to No. 4 Sqdn., S. Farnborough, 9/9. C. A. Washer and H. G. Adams, to No. 13 Sqdn., Netheravon, 9/9. L. E. Chiswell and G. B. S. Coleman, to No. 16 Sqdn., Old Sarum, 9/9. S. W. H. Egan, C. J. Hansford, N. C. Hyde and H. J. Ward, to No. 28 Sqdn., Catterick, 9/9. J. L. M. Davys and E. E. Noddings, to No. 1 Sqdn., Tangmere, 9/9. D. P. A. Boitel-Gill and J. A. MacD. Teacher, to No. 3 Sqdn., Upavon, 9/9. T. N. Fraser and L. M. Hooper, to No. 17 Sqdn., Upavon, 9/9. J. S. Hamilton and B. N. Matson, to No. 19 Sqdn., Duxford, 9/9. L. R. Mouatt, to No. 41 Sqdn., Northolt, 9/9. S. D. Slocum, to No. 43 Sqdn., Tangmere, 9/9. C. R. Davies and H. E. Mayes, to No. 56 Sqdn., North Weald, 9/9. J. C. L. Bruce and H. J. Wilson, to No. 111 Sqdn., Hornchurch, 9/9.

MEDICAL BRANCH.—Flight Lieutenant R. H. Stanbridge, to Central Medical Establishment, 15/9.

STORES BRANCH.—Flt. Lt. F. J. W. Humphreys, to H.Q., Coastal Area, 21/8. Flg. Off. J. R. R. Harvey, M.M., to No. 1 A.C.C., Iraq, 24/8.

ACCOUNTANT BRANCH.—Flight Lieutenant V. G. A. Bennett, to No. 23 Group H.Q., Grantham, 17/9.

Fatal Accidents.

The Air Ministry regrets to announce that as the result of an accident at Nocton Heath, Lincolnshire, to an Avro Lynx machine of No. 2 F.T.S., Digby, on Sept. 9, Plt. Off. Peter Strickland Ball, the pilot and sole occupant of the aircraft, was killed.

An inquest was held at Digby on Sept. 11 and a verdict of death by misadventure was returned. A farm labourer said that he saw the machine flying very low over a wood. The left wing touched a tree and the machine fell into a field and burst into flames.

The Air Ministry regrets to announce that as the result of an accident which occurred to a Wapiti machine of No. 11 (Bomber) Squadron, Risalpur, on Sept. 15, 1930, several miles south of the Lawarai Pass in the Dir Valley, North-Western Frontier Provinces, No. 330150 Sjt. Owen Cambridge Clarke, the pilot, and No. 365072 L-AC. Frank Spencer Valentine, the other occupant of the aircraft, were killed.

A Belgian Service Visit.

A Flight of five machines of the Belgian Military Air Arm will visit this country next week as the guests of the Royal Air Force. The Flight, which will be accompanied by General Gillieaux, the Commander of the Belgian Military Air Arm, will arrive at Manston on Sept. 22.

They will visit No. 9 (Bomber) Squadron and the School of Technical Training (Men), and on Sept. 23 they will fly to Bircham Newton, where they will visit No. 35 (Bomber) Squadron and No. 207 (Bomber) Squadron. On Sept. 24 they will visit the R.A.F. Practice Camp at Catfoss and the R.A.F. College at Cranwell.

On Sept. 25 they will visit No. 2 Flying Training School, Digby, and will fly, on the same afternoon to Upavon. On Sept. 26 they will visit No. 3 (Fighter) Squadron and No. 17 (Fighter) Squadron and will fly on to Eastchurch, where they will visit No. 33 (Bomber) Squadron. On Sept. 27 they will return to Belgium.

A BALTIC HARBOUR.—The Supermarine Southampton Flying-boats (two Napier Lions) of No. 201 (Flying-boat) Squadron, Royal Air Force, moored after arrival at Copenhagen during the Baltic Cruise.

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The Combined Exercises.

A combined Fleet and Air Exercise was held in the Channel and Isle of Wight on Sept. 9. The Atlantic Fleet, moving from Portsmouth and Plymouth to Invergordon, paused in the Channel to bombard Cowes. Cowes was assumed to be a defenceless town, without forts or any covering ships. The counter-attack on the Fleet was made by land aircraft from the R.A.F. Base at Gosport under Air Commodore A. W. Bigsworth, C.M.G., D.S.O., A.F.C., Officer Commanding No. 10 Group, R.A.F., which includes the Units at Calshot, Gosport, and Lee-on-Solent. The Air Force consisted of Fairey III Fs (Napier Lion engine), Fairey III Ds (Napier Lion engine), Fairey Flycatchers (Armstrong Siddeley Jaguar engine), Blackburn Blackburns (Napier Lion engine), Blackburn Darts (Napier Lion engine), and Supermarine Southampton Flying-Boats (two Napier Lion engines). About sixty aircraft in all were engaged.

The Fleet assembled at 17.00 hours, and hostilities opened half an hour later from a point between the Needles and St. Catherine's Point. The target was at a range of from 12 to 15 miles. Air attacks on the Fleet developed every two minutes, and continued for two and a half hours. The Fleet had hardly come into action before nine Flycatchers dived out of the clouds from a height of 6,000 feet with gas and machine-gun attack onto the cruisers *Centaur, Norfolk,* and *Adventure,* which are specially equipped for anti-aircraft work, and also on the flotilla of destroyers. Another formation of six Flycatchers attacked *Nelson* and *Rodney* at the same time.

Two cruisers were stationed near the Needles on the assumption that an aircraft attack would be made from the west, where the sky was comparatively clear of clouds. This proved to be a miscalculation, as the aeroplanes, crossing from the western part of the island, came in between the cruisers and the main body of the Fleet.

As the air attacks developed the ships changed direction and formation, and by 18.30 hours the cruisers best equipped with anti-aircraft guns were stationed on three sides of the Fleet. Air casualties may have been fairly heavy from that time, but many of the machines could not have been touched. In one case a flight of six Fairey III Fs bombed the *Marlborough* and the *Emperor of India* with 500-lb. bombs. The Flight came out of the clouds right over its targets, dropped its bombs and apparently escaped.

The Fleet, consisting of 20 vessels, ten of them heavily armed, moved slowly eastward under heavy assault from the air. Each air formation attacked, and then wheeled and returned to its base for fresh ammunition and to refuel.

Every vessel in the Fleet had been bombed by 19.00 hours, when a squadron of fifteen Blackburn Darts made a torpedo raid on the *Nelson* and the *Rodney,* and scored eight hits. Their way had been prepared for them by machine-gun operations against the anti-aircraft gun crews, and a high percentage of hits was registered. Further attacks were launched before darkness fell, at about 19.45 hours. Night operations had been planned, but were cancelled because of the bad state of the weather.

No. 208 (Army Co-operation) Squadron.

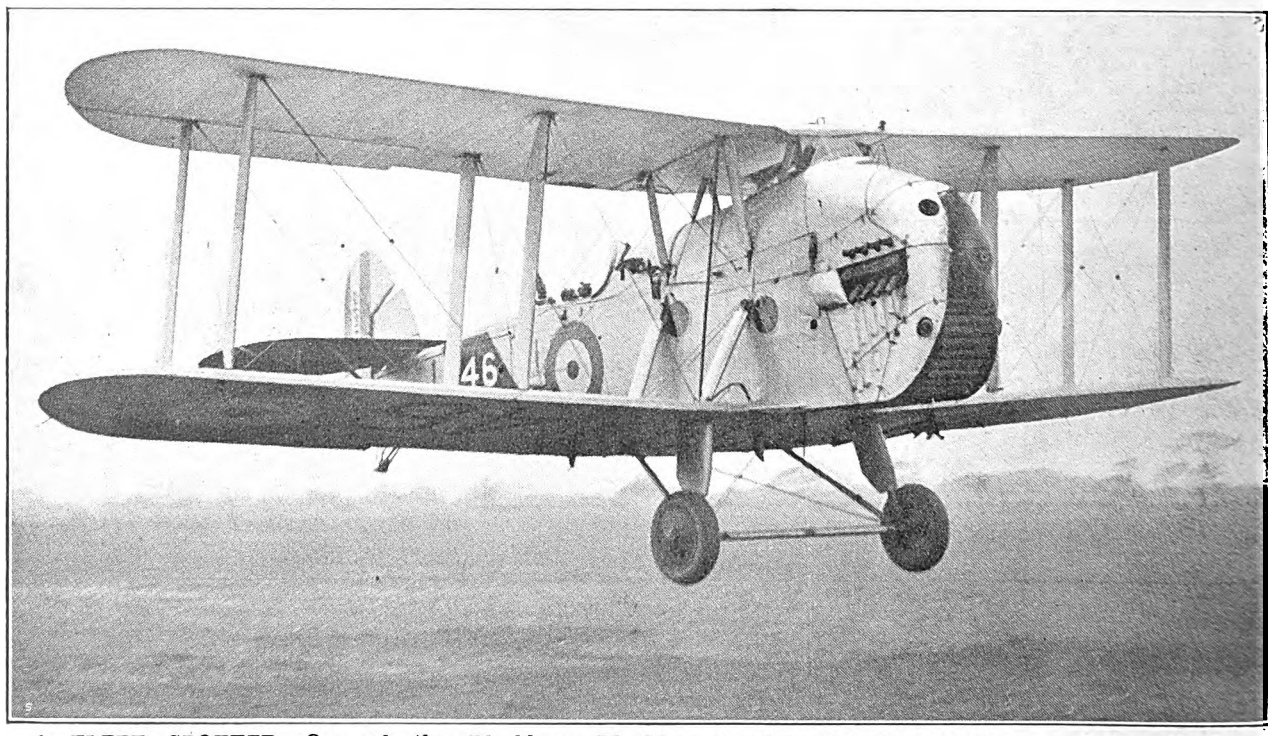
A new squadron crest and motto has now been approved for No. 208 (Army Co-operation) Squadron, R.A.F.

The crest, a reproduction of which appears herewith, has been designed by Sq. Ldr. V. S. E. Lindop, who commanded the squadron from February 1927 until April 1930. The motto, *Vis Unita Fortior,* is the work of Wing Cdr. P. Babington, M.C., A.F.C., Headquarters, Middle East.

The design of the crest embodies an eagle, symbolical of the R.A.F., and an anchor, the emblem of the Royal Navy, to which Service No. 208 Squadron, as No. 8 Squadron, R.N.A.S., was connected as one of the first original Air Squadrons of the Royal Navy.

The motto, which may be interpreted "United Strength is Stronger," refers to the present function of the Unit as an Army Co-operation Squadron, and it also refers to the fact that No. 8 Squadron was the first complete squadron of the R.N.A.S. to operate with the Army on land,—during the fighting on the Somme in October, 1916.

Now that these Unit crests and mottoes are officially approved, after they have existed for years in the Units but unrecognised by authority, the time has come for the mottoes to appear in the Air Force List at the head of each Unit, as a Regiment's motto appears in the Army List.



A FLEET SPOTTER.—One of the Blackburn Blackburn Fleet spotter, deck-landing aeroplanes (Napier Lion engine) which took part in the Exercises off the Isle of Wight on Sept. 9.—(*"Aeroplane" photograph.*)

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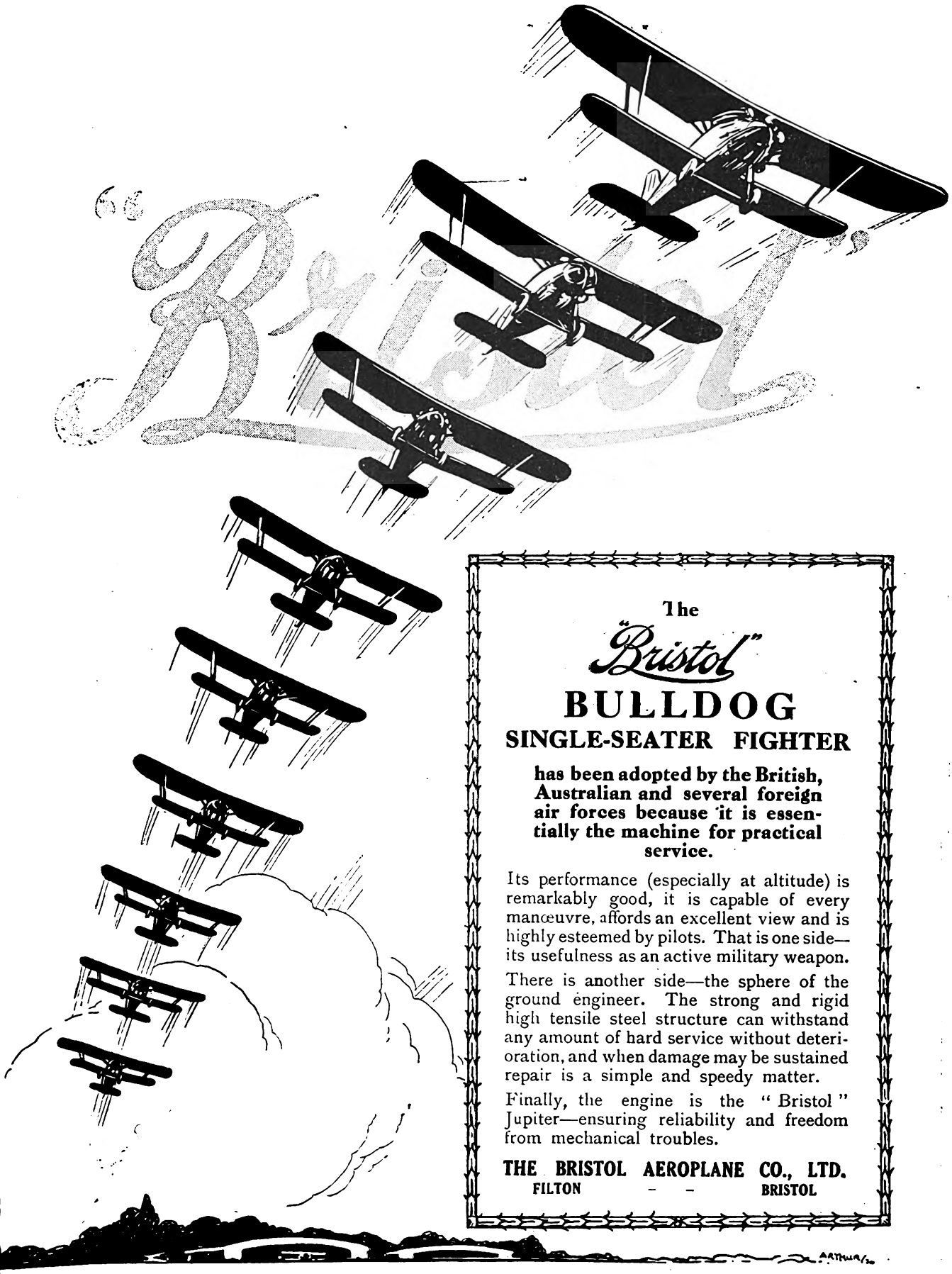

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has been adopted by the British, Australian and several foreign air forces because it is essentially the machine for practical service.

Its performance (especially at altitude) is remarkably good, it is capable of every manœuvre, affords an excellent view and is highly esteemed by pilots. That is one side—its usefulness as an active military weapon.

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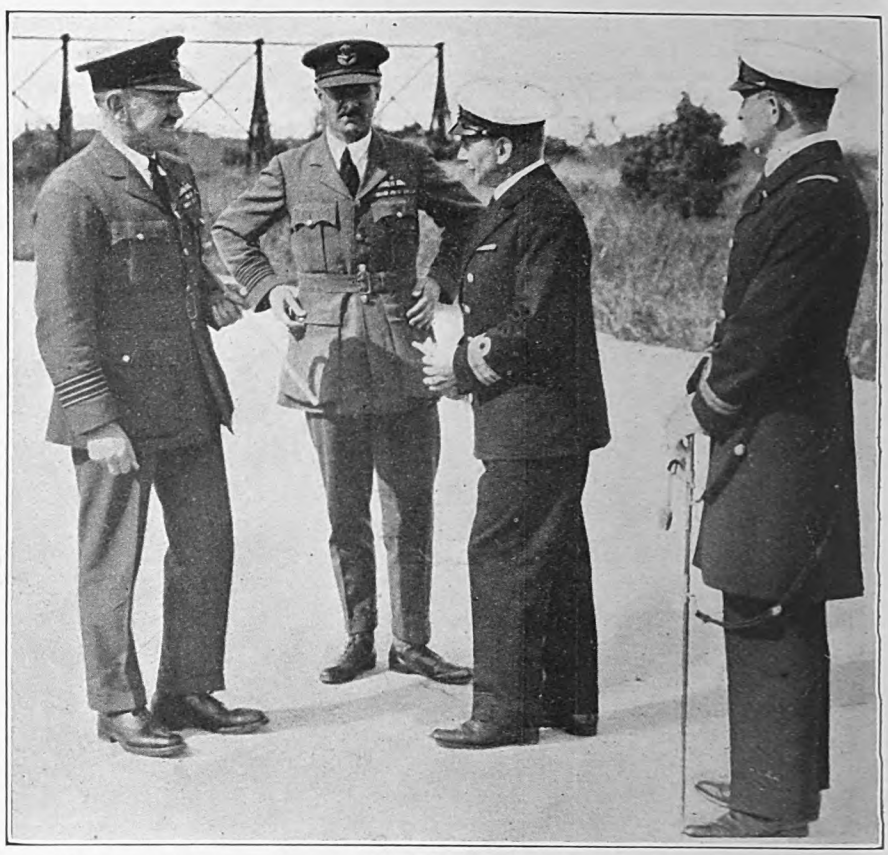

THE BALTIC CRUISE. — Captain Scheibel and First Lieutenant Ernst Rasmussen of the Royal Danish Navy receiving Group Capt. E. R. C. Nanson, C.B.E., D.S.C. (left), and Group Capt. E. L. Gossage, D.S.O., M.C., at Copenhagen on the arrival of the R.A.F. Flying-boat Squadron during its cruise of the Baltic.

A Flight to Koweit.

A paragraph has appeared in various daily newspapers to the effect that four Westland Wapiti aeroplanes left Amman, Transjordan, on Sept. 9 to fly to Koweit, on the Persian Gulf.

In several papers the correspondents have assumed that these machines are to form the nucleus of an air force for the Hejaz,—regardless of the fact that Koweit is an independent State, with its own King, Sultan, Emir, or what not. A more likely explanation seems to be that they are a flight of Royal Air Force machines engaged on regular patrol work. A flight by three or four machines to Koweit has for several years been one of the annual exercises of a Middle East Squadron of the R.A.F.

The squadron at Amman is No. 14 (Bomber) Squadron and is equipped with Fairey III Fs, but there are three squadrons of Wapitis in the 'Iraq Command, a Flight of any one of which might have been engaged on a long-distance exercise which would include Amman.

Ibn Saud, Sultan of Nejd and the Hejaz, is known to possess a number of aircraft and there are rumours of his buying Wapitis. But they would hardly be delivered by way of Koweit.

Special Assessments.

The following officer and airman have been awarded special assessments as shown on completion of a course of *ab initio* flying training at No. 4 Flying Training School, R.A.F.:—

Distinguished Passes:—Plt. Off. D. W. H. Heath, and No. 364277 Sjt. A. P. Staples.

Notations have been made accordingly in the official records.

What Compulsory Education Does.

Below appear some definitions given by candidates for appointment as Drivers of Petrol Vehicles in the Royal Air Force:—

Inventory:—Not real, or actual, a myth. Places just like workshops. Pieces being put together by man.

Adjutant:—Branch of an air officer who give orders to junoir offercers.

Illusory:—Not used plenty or maybe used to being knocked about.

Refuge:—Rubbish.

Licence:—Piece of paper that is granted to you to show that you are caperable of driving a car or in any way which it is held.

A DANISH RECEPTION.—Mrs. Alfred Raffel, of Copenhagen, welcoming Group Capt. E. R. C. Nanson of the R.A.F. Flying-boat Cruise in the Baltic, on the arrival of No. 201 Squadron. Others in the group are Admiral Rechnotzer, Captain Scheibel and First Lieutenant Rasmussen of the Royal Danish Navy, Group Capt. Gossage, British Air Attaché in Berlin, who accompanied the Squadron, Mr. I. A. K. Sinclair, British Attaché in Copenhagen, and Mr. Alfred Raffel.

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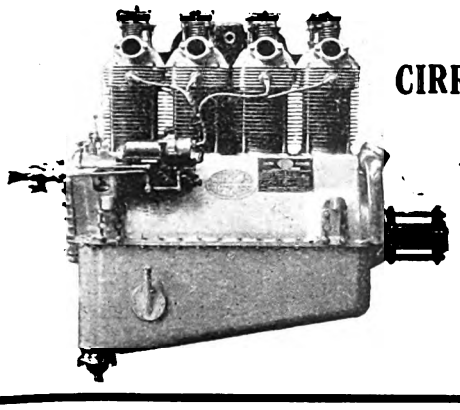
4th	Flt.-Lieut. G. Stainforth "Avian" fitted with	CIRRUS HERMES

FASTEST TIME OF THE DAY:

Capt. E. W. Percival—*125½* m.p.h.—"HERMES HENDY 302."

Siddeley Trophy	KING'S CUP	Britannia Trophy
1928	1926	1927
1929	1927	1928
1930	1930	1929

Grosvenor Challenge Cup
1929
1930



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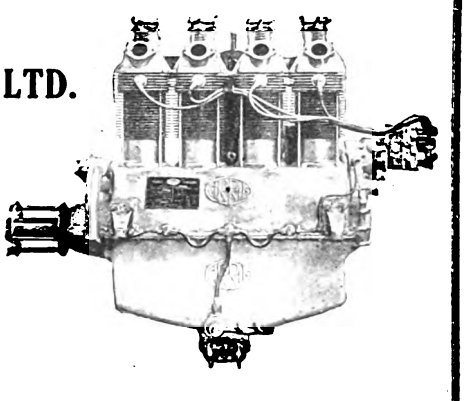

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Carburettor:—An instrument that has somthing to do with a car.
Mobile:—Somthing that is propeled by an engine.
Vortex:—Place provided for pedestrians in the middle of the road. Signs on the road for vehicles.
Engineer:—A constructor who works in all substances and metals. A skilled tradesman with a knowledge of mechanical construction and metalurgicals.
Bivouac:—A temporate camp.
"*Some one else's pigeon*":—Another persons bird. The driver who is driving the machine is driving to reckless and that is the phrase used by the pedestrian.
Dirigible:—Unconquerable. Wreck that is deserted. A ditch filled with water running through a field.
What great soldier's name is associated with Khartoum?:—General Lucknow. Robert Clive.
Emblems of England Scotland and Wales?:—Larrel Thissle Clover; Acorn thisle leak; Rose harp thisle; Red white blue.

A BRITISH SUCCESS IN ESTHONIA.

On Sept. 4 there was held, in the presence of the President of the Republic, the Minister of Defence, the Chief of the General and Army Staffs, the Officer Commanding the Esthonian Air Force and other high military and civil officials, the first air race ever held in Esthonia.

The race started and finished at Tallinn (Reval) and was restricted to military aircraft only. Ten machines competed, two from each division of the Air Force. These were five Avro 504Rs (Armstrong Siddeley Mongoose), two Avro Avians (Armstrong Siddeley Genet-Major), and three Potez 25s (Gnôme-Rhône Jupiter).

The machines were previously assessed at a given speed with a given petrol consumption and points for both these qualities were added or subtracted according to their performance in the race. Similarly points were awarded for landing on a mark at the finish.

The course flown was one of 590 kms. (366 miles) round Esthonia, and compulsory landings were made at Rakvere (No. 1 Division H.Q.) and at Tartu (No. 2 Division H.Q.). Landing grounds at Laatre and Nursi in South Esthonia were used as turning and observation points only.

Prizes were given by the President of the Republic, the Minister of Defence, the Chief of the Army Staff, Colonel Tomberg, O.C. the Esthonian Air Force, Sq. Ldr. A. C. Collier, R.A.F., Armstrong Siddeley Motors Ltd., and the Société des Moteurs Gnôme-et-Rhône.

The competing machines left Tallinn at ten minute intervals and great interest was taken in the race all along the route by the general public. The President of the Republic flew in the race for a part of the way in an Avro 504R.

The first prize was won by Lieut. Martson and Sergt. Turu (Avro 504R) who received 1,013 points and were awarded the President's Prize. This crew also won the prizes presented by Armstrong Siddeley Motors Ltd.

Second place was gained by Lieut. Läte and Air Mechanic Peet (Avro 504R) with 988 points. And Capt. Rothberg and Air Mechanic Luht (Avro 504 R) took third place with 892 points.

The Challenge Cup presented by the Minister of Defence was won by Capt. Döring and Air Mechanic Kalle in an Avro Avian for the best speed combined with fuel economy.

Lieut. Sepp (Avro Avian) would have easily carried all before him if he had managed to land on or near the mark at the finish, but he completely overshot which resulted in the deduction of the maximum 100 marks and relegation to fourth place.

The Challenge Cup presented by the Chief of the Army Staff was won by Lieut. Kuul and Air Mechanic Torokoff (Potez 25-Jupiter) for landing on the mark. This crew also won the prizes given by the Société des Moteurs Gnôme-et-Rhône.

In all 6,000 kms. were flown by the Esthonian Air Force in connection with this race and with the exception of one forced landing caused by a leaking oil tank, all machines and engines ran perfectly.

It is expected that this race will become an annual event. It is certainly the first of its type that has taken place in the Baltic States and it is very gratifying to see that British aircraft and aero-engines won practically everything that there was to win.

A SOUTH AFRICAN FATAL ACCIDENT.

Mr. P. W. Joubert and Mr. J. Allan King, cadets in the South African Air Force, were killed on Sept. 13 when their machines collided in the air over Roberts Heights, Pretoria, the depot and flying training school of the S.A.A.F.

"AEROPLANE" POSTCARDS.

Sets of six "Aeroplane" photographs printed on postcards may now be had from The Aeroplane Photograph Department, 175, Piccadilly, W.1, at 2s. a set post free.

Each set contains a flying photograph of the Bristol Bulldog, the Hawker Hart, the Hawker Horsley, the Boulton and Paul Sidestrand, the Fairey III F, and the Westland Wapiti.

This set is known as "Set A," and further sets will be available from time to time.

JAPANESE SERVICE DEVELOPMENTS.

An agreement has been reached between the Japanese Naval General Staff and the Air Board on a new aircraft building plan for the Imperial Naval Air Service. From it we may see that Japan is recovering nicely from the earthquake of a few years ago, and is again preparing to dispute with the United States the Mastery of the Pacific.

The scheme, which is to be referred to the Navy Department for approval, provides for:—

i. The expansion of the Imperial Naval Air Service by sixteen squadrons bringing the total up to thirty-three and a half squadrons.

ii. The increase of aircraft on carriers and warships from one hundred to two hundred.

iii. The establishment of an experimental and production works at Yokosuka.

The plan also provides for reforms in the equipment of aircraft-carriers and an increase in the number of airships.

The total cost of the whole scheme is estimated at 200,000,000 yen (£20,000,000). The cost of creating one new squadron is estimated at 4,500,000 yen (£450,000), and that of maintaining it at about 2,500,000 yen (£250,000).

It is stated that when the scheme has been put into effect, the ratio of the Japanese Imperial Naval Air Service to that of the United States will still only be about 20 per cent. In these circumstances the Naval Authorities intend to lay down a further expansion programme with due regard to the financial state of the country.

The Air Bureau of the Department of Communications has made an appropriation of 12,000 yen in the estimates of the Department for the next fiscal year for the purpose of creating an Air Commission. This commission will have some 30 members, including members of both Houses, Government officials and business men, and will act as an advisory body for the Cabinet.

Matters for study by this commission will include the establishment of a sound aircraft industry, the perfection of air routes, the building of airships and the training of aviators.

FRENCH MILITARY AIR ACCIDENTS.

The official enquiry into the two French military accidents at Chartres and Dijon, which on Aug. 27 resulted in ten deaths, is complete.

The verdict states that the cause of the Dijon accident was the breakage of an essential part, understood to have been a rudder. The entire class of aeroplane to which the two involved belong has been withdrawn from service.

The Press states that the trained mechanics in charge of military aeroplanes are insufficient and that the mechanics enrolled among men doing their military service cannot acquire in a short time the technical competence necessary for such work. It has also been alleged that the aeroplanes of the type in question are over-engined.

In two and a half months, that is from June 15 to Aug. 31, there have been thirty-seven accidents in the French military air arm which have resulted in 26 men being killed and 27 being injured.

SHOWING THE ITALIAN FLAG.

It is rumoured that the Italian *Regia Aeronautica* are planning a squadron flight of twelve machines from Italy to Brazil and the Argentine sometime next month.

During the night of Sept. 8 three flights of three Savoia-Marchetti S.55 flying-boats flew from Orbetello to Los Alcazares in Spain and five of them returned to Cagliari, by way of the North African coast the following night. General Italo Balbo was in command of this flight. One machine, carrying General Valle, chief of the General Staff, as passenger, was forced to land in a rough sea some 60 miles off Cape Palos, but he and the crew of the machine were picked up by a Greek steamer five hours later and taken back to Los Alcazares.

It is said that the above flight was intended as a trial of the machines and crews of the South American flight which have been preparing at Orbetello for some months.

A squadron of nine Fiat CR-20 single-seat fighter biplanes of the Italian *Regia Aeronautica*, accompanied by a three-engined Caproni biplane carrying a party of journalists, is making a tour of the Near East and Balkan States.

On Sept. 10 it arrived at Belgrade, Yugo-Slavia. Its arrival and departure were kept secret and the personnel were not allowed to be seen in public for fear of anti-Italian manifestations. Anti-Italian feeling is very high in Jugo-Slavia because of the execution of four Slovenes at Trieste by the Fascists.

From Belgrade, the squadron flew to Sofia, Bulgaria, where it was received by representatives of the Italian legation and the Bulgarian military and civil authorities.

After a two-day stay in Sofia, the squadron proceeds to Bucharest and thence to Varna and Constantinople.

While in Bucharest the Italian squadron is to take part in an aerobatics competition and air display together with Polish, Yugo-Slav and Rumanian military aircraft.

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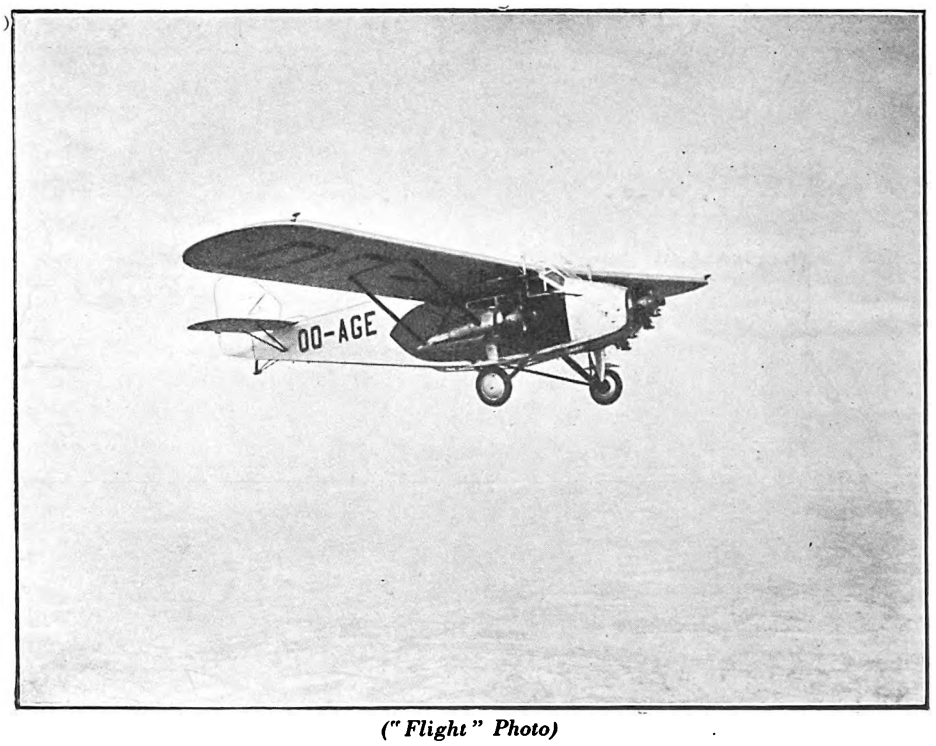
FOR AIRLINE AND PRIVATE OWNER



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THE 1930 AMERICAN NATIONAL AIR RACES.

From Aug. 23 to Sept. 1 the American National Air Races were held at the Curtiss-Reynolds Airport, Chicago.

During the ten-day period of the meeting it is estimated that there was a total attendance of 360,000 and the maximum attendance for one day—Sept. 1—was 60,000. The estimated cost of the whole meeting was $527,000 (£105,400) and it is prophesied that a profit of from $35,000—$45,000 (£7,000-£9,000) will have been made.

A feature of the Curtiss-Reynolds Airport, which was about 20 miles from the city of Chicago, was its dustiness and this was impressed, or blown, on the public in clouds when machines were started up with their tails towards the Grand Stand. In front of the stands were arranged 180 aero-pits in which the competing aircraft were parked while they were not flying, so that the general public could examine the aeroplanes at more or less close quarters.

For the races a triangular course of 5 miles was laid out with No. 1 pylon in front of the Grand Stand and the whole of the course within sight of the aerodrome. All races were given what was known as a horse-race start, that is, all aircraft in each race or race heat started together at the fall of a flag or at the report of a pistol shot and as the maximum number starting together was never more than five no trouble was experienced.

The average daily programme consisted, in the morning, of demonstration flights, and glider duration and landing contests (the gliders naturally were towed off by automobiles), landing contests for power-driven aircraft and balloon bursting. In the afternoon, after the ceremony of raising the Flag, there took place several of the races planned for the meeting, and in between these events Army, Navy and Marine Corps fighter squadrons and an Army bomber squadron gave formation displays.

Jimmy Doolittle and Al Williams, together with the International representation, consisting of Flt. Lt. R. L. R. Atcherley, R.A.F., Marcel Doret (France), Fritz Lohse (Germany) and Pietro Colombo (Italy) also gave a daily display. Doolittle flew a Travel Air "Mystery" monoplane, Williams a Curtiss Hawk with a 525 h.p. Wright Cyclone engine, Atcherley a Blackburn Lincock and a Curtiss Fledgling for his "crazy flying," Doret a Dewoitine D.27 with a 400 h.p. Hispano-Suiza engine, Lohse a Great Lakes Trainer, after he had damaged the undercarriage of his Junkers Junior when his engine cut out on taking off on the first day, and Colombo a Breda 18 with an Armstrong Siddeley Lynx engine.

Thereafter followed a demonstration by Frank Hawks who was towed in an Eaglet glider up to 1,500 ft. behind an aeroplane and then released to glide back to the aerodrome. Then came a flight by Al Wilson in a 1911 Curtiss pusher after which was staged a parachute-jumping competition.

The afternoon's programme was brought to an end by a demonstration by three Autogiros and a slotted and flapped apparatus known as the "Doodle Bug." These craft all took off out of an enclosure surrounded by a barrier 1½ feet high, climbed to 150 feet, and landed back again into the enclosure.

The evening was given over to illuminated demonstrations by Service pilots, and by Al Wilson on his Curtiss pusher.

As in previous years the Meeting was well supported by the Services and each day the exhibitions by Army, Navy and Marine Corps formations helped to fill out a programme that at times was inclined to sag for want of civilian entries for the big programme of races that was drawn up.

Spread over the ten days there were about fifty race events of which forty-five were civilian contests and five were Service races.

In addition there were seven so-called "Derbies" starting from various points in the United States—five from the Pacifice coast and two from the Atlantic coast—and finishing at the Curtiss-Reynolds Airport. In one of these, from Los Angeles, five Lockheed Vegas were reported to have covered the 2,000 miles within 15 minutes of one another, and all at a speed of over 160 miles an hour.

These "Derbies" were started from their various points to the sound of a pistol shot broadcast from Chicago and one humorist remarked that if any amazingly high or low speeds were developed by these cross-country racers these can be attributed to the fact that they probably started on the wrong pistol shot. The same humorist is responsible for the statement that it was easy to distinguish the visitors to Chicago from the natives as the former did not duck and run for cover every time a race was started.

The Service races were notable for the comparatively slow speeds generated by the modern U.S. military aeroplane.

The Liberty Engine Builders' Trophy Race for National Guard personnel was won by Lieut. W. V. Newall in a Douglas observation biplane at 129.76 m.p.h. with Lieut. C. D. Barnhill and Major P. Love, second and third in similar aircraft at 129.53 and 129.17 m.p.h. respectively. These speeds are reasonable for standard two-seat observation type aircraft but it was with the single-seat fighter type that the speeds showed up badly.

The U.S. Navy Fighting Plane Race was competed for by seventeen Boeing fighters (Pratt and Whitney Wasp engines) of Fighting Squadron Five from the aircraft carrier *Lexington* and this was won by Lieut. D. S. Cornwell with an average speed of 127.23 m.p.h. over the 50-mile course. Lieut. J. F. Greenblade was second at 125.69 m.p.h., and Lieut. J. P. De Shazo was third at 125.52 m.p.h. After crossing the finishing line Lieut. De Shazo did a roll low down and it was believed that he was caught by the slipstream of the machine in front. His machine crashed and caught fire, the pilot and one spectator were killed and several others were injured.

The Marine Corps Race was competed for by six Curtiss Sea Hawk fighters (Pratt and Whitney Wasp engines) and this was won by Lieut. Sanderson at 142.36 m.p.h. with Lieut. Burchard second at 142.1 m.p.h. and Lieut. Kerr third at 140.59 m.p.h.

[At Dayton in 1924 a whole squadron of P.W.8. Curtiss Fighters, with Curtiss D.12. engines covered a 100 miles at speeds which varied between 166 and 175 miles per

A CURTISS RACER.—The monoplane (Curtiss Conqueror) which after doing over 207 m.p.h. round a five-mile circuit in the Thompson Trophy Race crashed and killed Lieut. A. Page, U.S.M.C., its pilot.

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hour,—so something has gone badly wrong with U.S. Army Air Corps equipment, considering that our two-seaters now do over 200 m.p.h.—C. G. G.]

By far the most outstanding high-speed performance of the meeting was put up by one B. H. Howard, who in a home-made monoplane of extremely attractive appearance and fitted with a Wright Gipsy engine entered the Civilian Free-for-all Races for aircraft with engines of 350, 450, 650, 800 and 1,000 cub. in. capacity respectively and won all five at speeds ranging from 154.83 m.p.h. to 163.01 m.p.h.

The only other aircraft which were appreciably faster than the little Gipsy-engined monoplane were a special Laird biplane with the 300 h.p. Pratt and Whitney Wasp-Junior engine with which "Speed" Holman won the Thompson Trophy Race at 202.2 m.p.h. and the Travel Air "Mystery" monoplane with a 300 h.p. Wright Whirlwind engine, with which James Haizlip won the Civilians' Closed Course race for aircraft with engines of 1,000 cub. in. capacity at 183.36 m.p.h. and took second place in the Thompson Trophy race at 199.8 m.p.h.

The Thompson Trophy race was an unlimited speed contest for any type of aeroplane using any type of engine, supercharger, fuel, etc., and it attracted seven entries. These were a special Curtiss racing monoplane with an 800 h.p. Curtiss Conqueror engine flown by Lieut. Page, U.S.M.C., the winner of this year's Curtiss Marine Trophy race; two Travel Air "Mystery" monoplanes flown by Frank Hawks, the holder of the Transcontinental record, and James Haizlip; Paul Adams in a Travel Air-Whirlwind biplane; and B. H. Howard in his Gipsy-engined monoplane; Errett Williams in a Weddell-Williams monoplane with an American Cirrus engine; and "Speed" Holman in a special Laird biplane, as mentioned above.

Lieut. Page crashed on the 17th lap, after leading the field by a wide margin with an average of 207.59 m.p.h. Holman finished first and Haizlip second and B. H. Howard again highly distinguished himself by finishing third at an average speed of 162.8 m.p.h. Apart from producing a clean aeroplane Howard put up some of the cleanest flying at the pylons, always banking to the same 80 degrees and never giving anything away.

Among the distinguished visitors who arrived by air were Col. Charles Lindbergh and Mrs. Lindbergh in their Lockheed Sirius low-wing monoplane and Herr Wolfgang von Gronau and his crew who flew past the Grand Stand in the Dornier Wal in which they flew the Atlantic.

Canada was represented by Mr. F. G. M. Sparks, late of the London Aeroplane Club and now of Montreal, who in the Civilians' race for cabin machines with engines of 350 cub. in. capacity took second place to a monoplane with a D.H. Puss-Moth at a speed of 118.54 m.p.h. The speed and quietness of running of the standard production Puss-Moth aroused much favourable comment. Other Canadian visitors were Messrs. Foss and Knight, Directors of the Montreal Light Aeroplane Club and Flt. Lt. S. T. B. Cripps, late of No. 32 (Fighter) Squadron, who gave an exhibition of aerobatics in a Gipsy-Moth.

During the whole meeting there were three fatal accidents and two of these, to Lieut. De Shazo and Lieut. Page, have already been mentioned. The third was to the Fernic Cruisaire tandem monoplane. This machine was like an ordinary monoplane with an auxiliary plane mounted just above the nose of the machine above the engine cowling. The Cruisaire had a three-wheeled undercarriage with the third wheel under the nose and the engine was a four-cylinder in-line air-cooled Rover. Mr. Fernic was piloting this machine, for which he claimed non-stalling qualities, when he went into a spin at about 150 ft. above the aerodrome. The machine fell onto a Monocoupe and was completely wrecked.

There was quite a large feminine participation and five races and two air Derbies were staged for women pilots. Mrs. Gladys O'Donnell won the McCormick Trophy race and the Women's closed course race for aircraft with engines of 800 cub. in. capacity in a Whirlwind-engined Waco at 149.9 and 139.88 m.p.h. respectively. Mrs. Phoebe Omlie, a regular pilot employed by the Mono Aircraft Company, won the Women's closed course races for cabin aircraft with engines of 500 and 800 cub. in. capacity in a Warner-engined Monosport at 135.2 and 139.97 m.p.h. respectively. Each of these aviatrices also won one of the two women's Derbies, Mrs. O'Donnell flying from Long Beach, Cal., and Mrs. Omlie from Washington, D.C.

The 1930 National Air Races were a success. The service participation alone was sufficient to amuse the huge crowds. The civil participation was largely trade, and the extent to which commercial firms support aviation in the United States is notable in the number of aircraft present belonging to the petrol and oil companies.

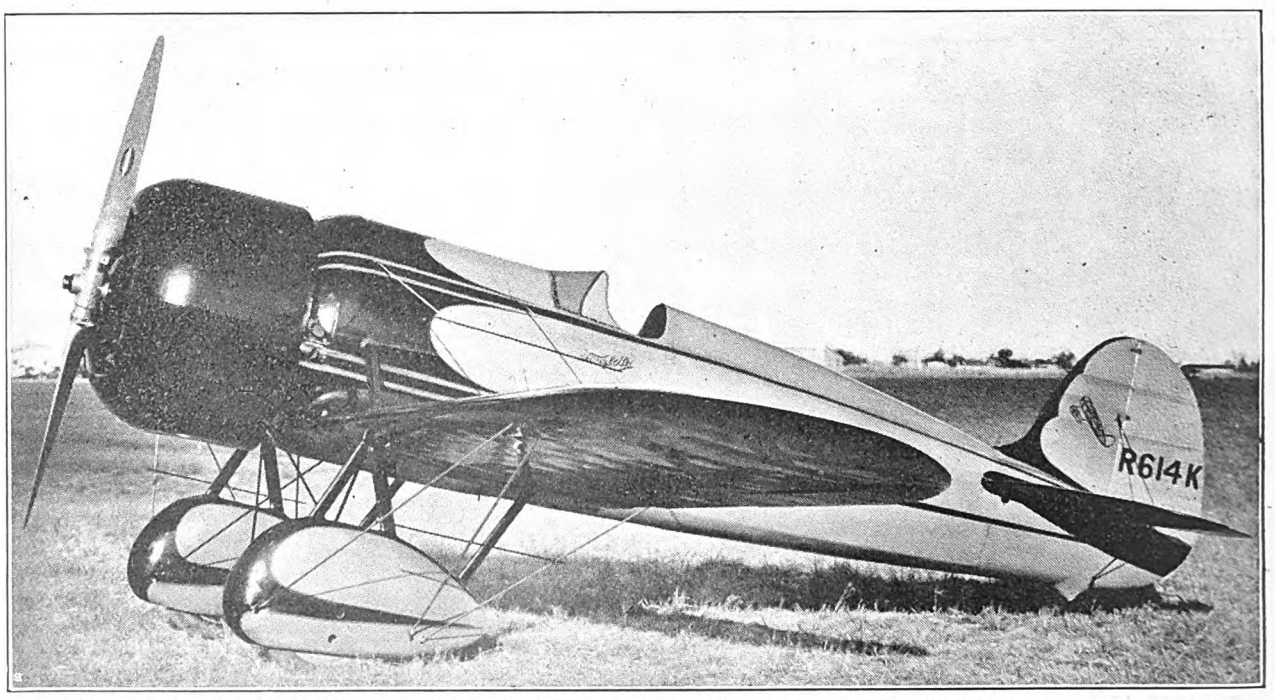
The Richfield Oil Co. had two Lockheed Vegas, a Ford Trimotor, a Fokker Super-Universal, a Savoia-Marchetti and a Laird biplane. The Shell company had Jimmy Doolittle's Travel Air "Mystery" monoplane and a Lockheed Vega. The Texaco company had Frank Hawk's Travel Air "Mystery" monoplane, a Lockheed Vega, the Eaglet glider and a Waco biplane. The Mobiloil company had a Stinson Detroiter. The Gilmore Oil company had a Lockheed Air Express. And the Standard Oil Company had about four machines present at the races.

Five races were organised for private owners, or sportsmen pilots as they are known in the United States, but up to Aug. 27, the Contest Committee had only received one entry for all the five races. Later on enough entries were obtained to run off two of the races and for one of these races a newspaper reporter was pulled out of the Press Stand to compete and win.

ON THE SPOT.

The following extracts from a regular and generous reader of The Aeroplane in Chicago give a better picture than any set report could do:—

Flt. Lt. Atcherley's exhibition is so good that a friend of mine remarked to-day that if the British had washed out the Lincock because it was underpowered, he would like to see what one of their really good machines would do.



THE MYSTERY SHIP.—The Travel Air Mystery monoplane (300 h.p. Wright Whirlwind engine) which holds the American Transcontinental record. Several examples of this type performed at the National Air Races.

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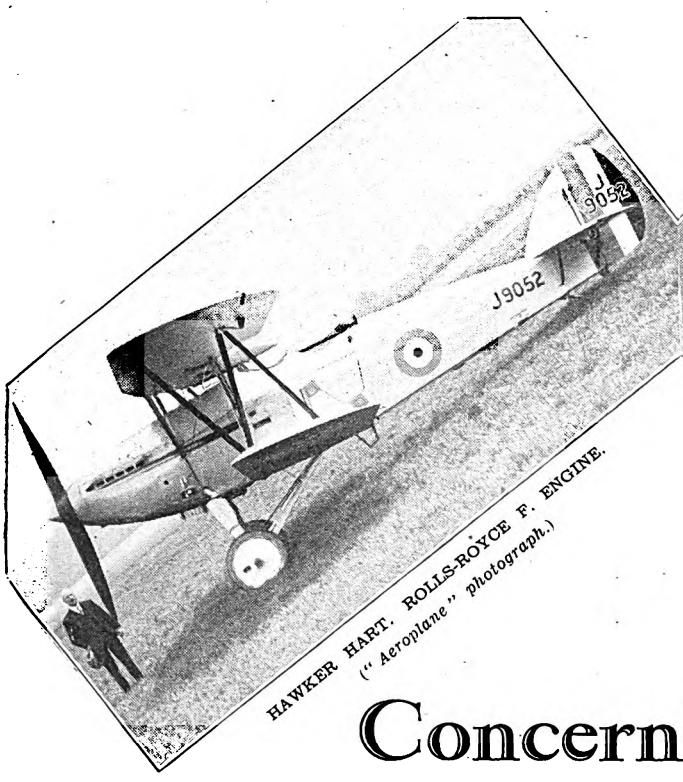
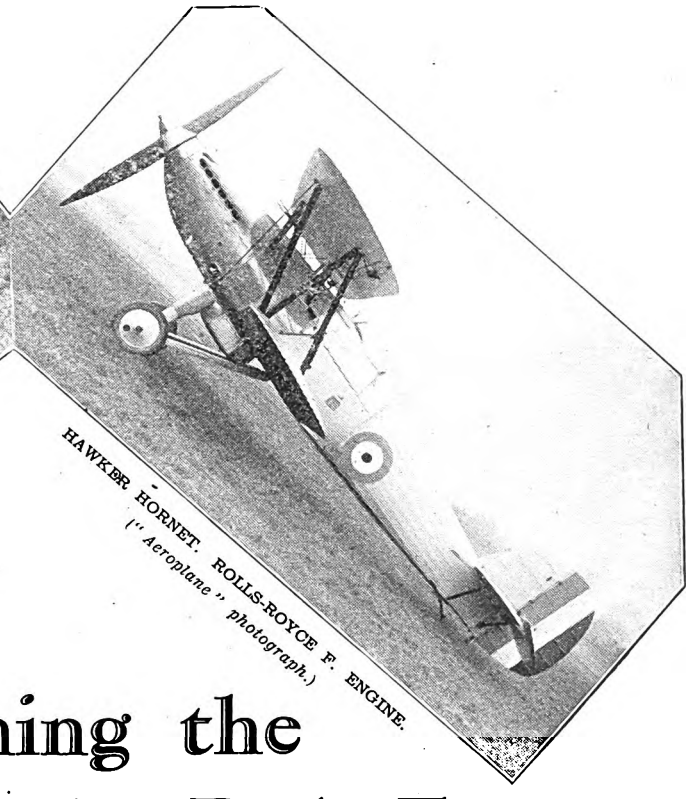


HAWKER HART. ROLLS-ROYCE F. ENGINE.
("Aeroplane" photograph.)



HAWKER HORNET. ROLLS-ROYCE F. ENGINE.
("Aeroplane" photograph.)

Concerning the Air Exercises of the R. A. F., 1930

"I saw a succession of striking raids which showed dramatically the advantage of high speed in bombing. Although the 'HARTS' were less than 2,000 feet up the defending fighters, actually far inferior in speed, had no chance. It was 180 miles per hour versus 150 miles per hour."—*The Daily Telegraph*, Aug. 13th.

"To the ordinary observer there seemed to have never been any hope that the defence could come up to these fast machines." —*The Times*, Aug. 13th.

"A completely successful raid by flights of 'HARTS,' the fastest of all the bombers, which left the defending fighters standing." —*The Times*, Aug. 14th.

"The Day Bomber already referred to is the 'HART.' The only already adopted fighter which could deal with it is the 'HORNET.'" —*The Daily Telegraph*, Aug. 16th.

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Atcherley's inverted falling leaf and the smoothness of his banked turns while inverted have evoked special praise.

Doret has established a reputation for being more spectacular, largely because he tries to brush hats off the grandstand spectators while Atcherley prefers to entertain without scaring the pay customers to death. Colombo hasn't shown anything to get excited about. Lohse had the bad luck to wash out his landing gear on the first day when his engine cut out as he was taking off for his first flight.

Atcherley says he has been most struck by the fact that practically all of the service craft over here are rigged for inverted flying and indulge in inverted formations to a very great extent. He also speaks kindly of some of the service formation flying, and is enthusiastic about the combination in one meet of some 300 civilian ships with large groups of Army, Navy and Marine craft. He also is warm in his praise of the field, which, a year ago this time, was being tiled and graded, with part of the farm crops still standing.

I don't know whether the N.A.A. expects to bring over a foreign team next year, but the venture has been well worth while. I understand that the Richfield Oil Company paid the expense of sending Lieut. Al Williams to Europe and bringing the visitors and their machines to this country. I can't think of any way money could be better spent.

Each afternoon the four visitors take off, led by Al Williams or some other American flyer, fly past the grandstand, while parachute bombs carrying the flags of the five countries are fired. Then all but one land, and the visitors take turns each giving a ten minute exhibition.

In the Navy "High Hat" squadron, the nine planes fly in formation, tied together in threes. And there is a trio of of Navy pilots from Anacostia Station, Washington, whose speciality is a leader who flies on his back, with the planes at the "V" tips in normal position, whereupon all three loop in formation—two normal loops and an outside loop starting inverted at the bottom.

They also have a perfectly timed game of leap frog, flying in echelon. The forward plane on the left rolls up and over and drops into place on the right rear, whereupon the second, and then the third completes the same manœuvre. As you can see it requires absolute timing.

A trio of Autogiro exhibitionists includes one small one built in England, last year's product from the Pitcairn factory, and a new Pitcairn-built ship, just completed last week. It has a speed of 140 and flew here from Philadelphia nonstop in less than seven hours.

Lieut. John A. MacReady, U.S.A.S. (Ret.), whom I believe you met at Dayton several years ago when he was doing altitude flights, had a remarkable escape from death to-day. He had a low wing job in the light plane race, and, on his first lap, as he rounded the 3rd pylon in a vertical bank, he nosed into the ground. The plane cart-wheeled, shed the left wing at the first impact, the motor was wiped off sideways at the second, the right wing at the third, and then the fuselage began to dissolve.

Mac wound up with a piece not much bigger than his seat, and, aside from bruises, nothing but a two-inch cut over his eye to show for the experience. Came to before an ambulance could reach him and wanted to get up and walk.

A STAR TURN.

I must tell you that Flt. Lt. Atcherley has become the outstanding hit of the race-meet as a result of his exhibition of crazy flying on a Curtiss Fledgling. It started by accident one morning when Atcherley borrowed the Fledgling and went over to the 400 acre student field, south of the main airport, to try it out.

A motorcycle policeman, thinking some inexperienced student was trying to kill the occupants of parked automobiles, set out in pursuit, when, much to his mortification, he discovered Atcherley had banked around and was on the motor-cycle's tail. The chase, as described by the cop, was so funny that the affair was added as a stunt to the regular programme, with a new motor cop armed with blank cartridges.

The Fledgling is a bit heavy for the job, but will stand any kind of abuse, and the crowd gets a thrill when Atcherley drags his lower wing a half mile, sending up clouds of dust. The new cop is a bit of an actor, too, and faked a fall, hiding behind his motor-cycle in an effort to keep out of Atcherley's sight, and did it so well that even the press thought it was an accidental spill. I am enclosing a front page story from *The Chicago Tribune* which you may enjoy.

Here follows the story:—

BY VIRGINIA GARDNER.

As County Highway Policeman Jack Davies says himself, he is a conscientious policeman. So, when cruising along Lake Avenue on his special air race duty yesterday morning, and observing a Curtiss Fledgling plane skim over the tops of cars parked south of Curtiss air field, he took notice.

Halting his motor-cycle, he looked with astonishment as the plane scraped a telephone pole. He watched the strange pilot apparently lose complete control of the plane. Then, as motorists began leaving their cars before they completed parking them, to run from the field, Policeman Davies roused himself to action.

"First thing I did," he said later, "was to speed to headquarters in the hangar. Cliff Henderson had several phone calls by that time from persons who saw the ship. 'The Curtiss people have some student flyer who can't manage his plane,' they'd phoned, 'and he's about to crash and kill a lot of people.' So when I got there Henderson said: 'Go out and arrest him, quick!' I hurried off.

"When I got there, by golly, the fool student was hung up in a telegraph wire. It looked like that to me. But he got loose. I set out for him on my motor-cycle.

"But when I got right on him, he turns and begins heading my way. I knew he couldn't run the darn thing. No telling what the fool would do. So I stepped on it. He was right behind me. Twice he landed, bumping up and down, a few feet from my rear wheel.

A GIPSY-ENGINED RACER.—Mr. Benny Howard and his attractive little Gipsy-engined monoplane with which he won five races at speeds around the 160 m.p.h. mark at the National Air Races.

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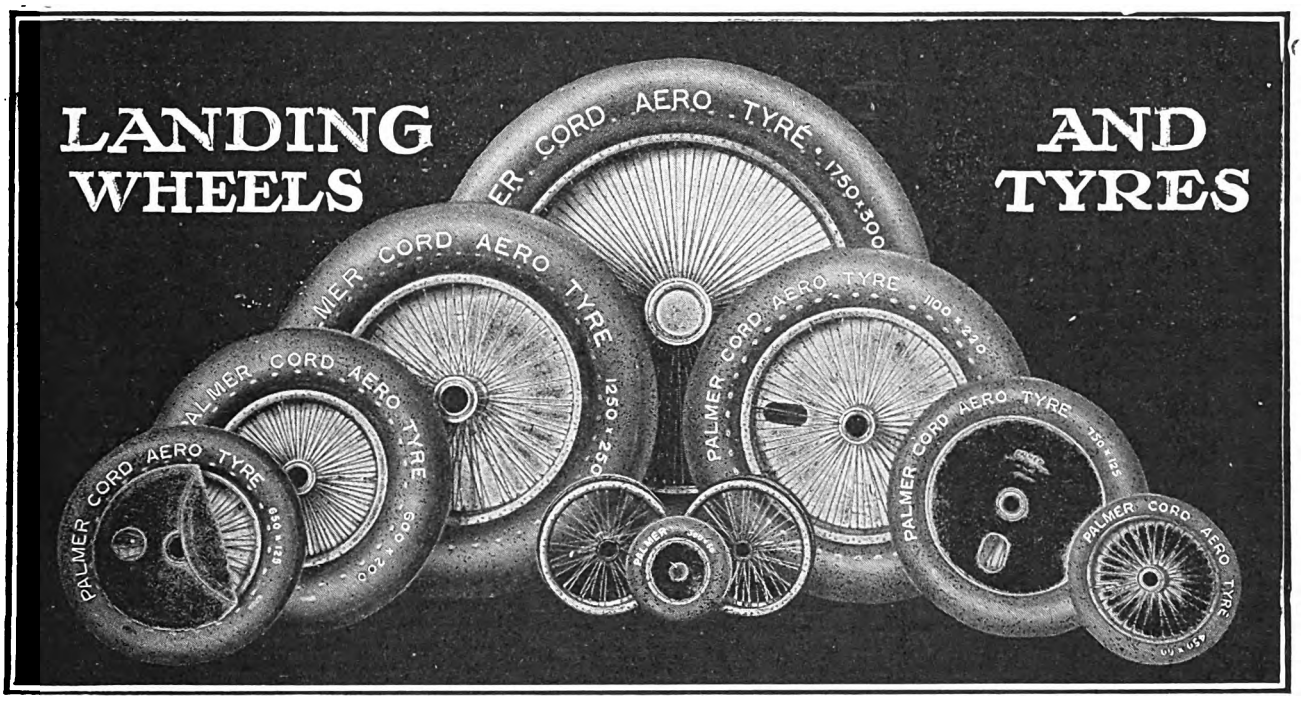
PALMER



STANDARD SIZES.

Tyre Size	Wheel No.	Hub Length	Hub Bore	Track Line
		m/m	m/m	m/m
375×55	168	111.12	25.4	Central
,,	195	130.	38.09	Central
300×60	16	111.12	25.4	Central
450×60	30	89.	31.75	Central
,,	172	130.	38.09	Central
575×60	21	160.	28.	Central
,,	180	150.	38.09	104/46
,,	186	120.	34.92	Central
,,	190	150.	38.09	Central
600×75	21	160.	28.	Central
,,	180	150.	38.09	104/46
,,	186	120.	34.92	Central
,,	190	150.	38.09	Central
700×75	78	178.	44.45	132/46
,,	79	178.	44.45	Central
,,	100	178.	38.09	132/46
,,	101	178.	31.75	132/46
,,	196	178.	55.	Central
600×100	188	120.	34.92	Central
,,	304	150.	38.09	104/46
,,	333	120.	34.92	Central
700×100	77	178.	44.45	132/46
,,	92	185.	55.	135/50
,,	95	185.	55.	Central
,,	99	178.	38.89	132/46

Tyre Size	Wheel No.	Hub Length	Hub Bore	Track Line
		m/m	m/m	m/m
700×100	112	150.	38.09	Central
,,	176	178	44.45	Central
,,	179	178.	55.	132/46
650×125	119	178.	55.	132/46
,,	147	178.	55.	Central
,,	188	120.	34.92	Central
,,	336	178.	44.45	132/46
750×125	77	178.	44.45	132/46
,,	92	185.	55.	135/50
,,	95	185.	55.	Central
,,	99	178.	38.89	132/46
,,	112	150.	38.09	Central
,,	176	178.	44.45	Central
,,	179	178.	55.	132/46
800×150	161*	185.	55.	135/50
,,	162*	185.	55.	Central
,,	163*	185.	66.67	135/50
,,	169†	185.	55.	135/50
,,	177	185.	55.	135/50
,,	183	185.	55.	Central
,,	211*	185.	60.32	135/50
1000×150	167	185.	55.	125/60
,,	174	250.	80.	Central
,,	182	185.	55.	Central
,,	187	220.	66.67	Central
,,	201	185.	60.32	125/60

Tyre Size	Wheel No.	Hub Length	Hub Bore	Track Line
		m/m	m/m	m/m
1000×150	210	185.	60.32	Central
1000×180	148	220.	80.	Central
,,	149	185.	55.	Central
,,	155	220.	66.67	Central
,,	166	185.	55.	125/60
900×200	107	185.	55.	Central
,,	108	185.	55.	125/60
,,	128	220.	66.67	Central
,,	137	250.	80.	Central
,,	157	185.	80.	Central
,,	202	185.	60.32	Central
1100×220	134	220.	66.67	Central
,,	136	250.	80.	Central
975×225	192	185.	60 32	Central
,,	194	185.	55.	125/60
1100×250	364	220.	60.32	Central
1250×250	314	250.	80.	Central
,,	154	304.8	101.6	Central
1500×300	305	304.8	152 4	Central
,,	306	304.8	101.6	Central
1525×325	197	304.8	101.6	Central
1750×300	139	400.	152.4	Central
,,	191	350.	150.3	Central
1750×350	193	400.	125.	Central
2000×450	363	500.	152.4	Central

**Wheels Nos. 161, 162, 163 and 211 are of stronger type than the other wheels for 800×150 tyres.* *† Wheel No. 169 is fitted with Ball Bearings.*
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"I keeps turning around and yelling and waving at him, but whenever he comes down, he goes up again. People were standing all around the field yelling. Finally I figured there was no use losing my life because the fool couldn't stop the plane. So I pulls my gun.

"Then the plane stops and he crawls out. Smiling, by golly; he has the crust to smile.

"Before I could get my breath a motorist rushes up to him on foot. He's a big shot, see—a big insurance man, I think he was. 'Who the hell do you think you are,' he says to the pilot, and other language not fit for me to repeat.

"It makes him sore, naturally, to see the young green student standing there grinning. Then the young feller asks, just like nothing was wrong, 'And who are you, sir?' The big insurance man tells him then just who he is.

"Then the young feller—he was dressed in some old clothes, didn't look like nobody at all, see—he says, 'And I'm with the British Air Corps. My name's Atcherley. I'm awfully glad to meet you.'

"Then he turns to me and says, 'I was just having a little fun, old fellow. Was just getting ready to go up and take a dive at you.' And he laughs. Well, it wasn't funny to me.

"Then he says, 'I had permission to practise here for a stunt I'm going to do. Sorry, old fellow, if I put you to any trouble.' Trouble! What does he think it is to go 50 miles an hour over a cornfield on a motor-cycle?

"So," concluded the policeman, "when some of the race officials found out about it and thought it was so funny they'd put me in on the programme this afternoon, I said, 'Nothing doing! You get somebody else.'"

When Lieut. R. L. R. Atcherley performed his stunt of "crazy flying" in a low-powered student plane in the afternoon the order was reversed and a policeman chased him. Bill Beyer of a Chicago motor-cycle squad played the part Davies declined to play. Beyer's motor-cycle crashed in the stunt, but he was not hurt.

Mrs. Howard's Benny's Pete.

This might be called the Saga of Mrs. Howard's boy Benny.

Benny, middle initial F., took time off from his job of flying the night mail to attend the Cleveland races last year, and went home resolved to build a ship to compete in 1930. Benny is a darned good pilot, but not much of an engineer, in the technical sense, and rather weak on maths. So he enlisted a neighbour's boy, a high school student, bought a drafting board, pencils and paper, and the two set to work. All went well until they were stumped by a problem in calculus, so they knocked off for two weeks, sent the high school lad to night school until he learned enough calculus to solve the problem, and then proceeded.

The finished product, with a Wright Gipsy engine, is one of the sweetest little 90 h.p. low-winged monoplanes ever seen. The lines, the finish, everything about this backyard product make the best manufacturer's output look like coal trucks. It is enamelled a gleaming white and kept spotless.

The cowling is a marvel of stream lining and efficiency, and never once did the engine run hot. The job has one bad feature,—in a crash it would probably behead the pilot, whose head projects out of a slot about 8 inches wide by 16 long,—for the fuselage door, hinged at the bottom, closes up over his shoulders.

In his first race the motor balked, and Benny got away last and far behind. In 25 miles he passed everything except Speed Holman in a Laird, and then Speed was disqualified for cutting a pylon, so Ben got the $1,000 for first money.

The ship had cost about $4,200 to build, and, when Benny won the opening race on the last day his winnings came to $4,150—five firsts and a second. And then, to everyone's surprise, he entered the Thomson Trophy, $10,000 Free for All.

There were only three prizes, and four ships entered that were good for from 40 to 90 miles an hour more than "Pete," as Benny, without much originality, had named his ship. The four included Capt. Arthur Page, in the Navy's 800 h.p. Curtiss Conqueror-Hawk; Capt. Frank Hawks in the Mystery Travel Air with which he broke the Lindbergh's trans-Continental record; Jimmy Haizlip in Jimmy Doolittle's Mystery Travel Air; and Speed Holman in a new Laird finished the night before and test-hopped that morning.

Hawks went out early in the 100 miles with an overheated engine, and in the 17th of the 20 laps Page crashed in a forced landing. So Benny got the $2,000 third prize, bringing his winnings for the week to $6,150. He made 162 m.p.h. plus to Holman's 201 plus, which isn't bad for a Gipsy bucking a Wasp.

By the way, because Holman complained of gas from his Wasp, which had open exhaust-ports, it was suggested Page may have been gassed by his Conqueror, though it carried stacks to aft of the cockpit. A blood test showed enough carbon monoxide to have produced either dizziness or fainting.

A Chicago Handicap.

This also is too good to be missed:—

In view of the doubts you have sometimes expressed re American performance claims you will no doubt get a chuckle from the marvellous system the Race Committee devised for handicapping entries in an amphibian race.

They handicapped them on the basis of the manufacturer's claimed high speed, and announced over the public address system that they were doing that "*to promote truth in advertising.*"

It was a Rescue Race and there were seven entries—a Loening, two American-built Savoia-Marchetti three-place open jobs, and three Sikorskys. But only the last three came up to face the starter—perhaps because of the handicapping, perhaps not.

They took off from the airport, flew to a point in Lake Michigan off downtown Chicago, landed, picked up cork-filled dummies, flew back to the field, taxied to the finish line, and each pilot personally carried his dummy to the announcer's stand. The course was 39 miles, with two landings and one take-off and the fishing for the dummy, but the winner finished a 100 yards dash with the dummy and delivered it in exactly 21 mins. 9 secs. Second was about 15 secs. behind and third about the same distance again.

[We can only hope that Mr. Dancey and his henchmen will follow this good example next year and will likewise promote truth in advertising.—Ed.]

AMERICAN HOSPITALITY.

By R. L. Preston, Honorary Secretary, Household Brigade Flying Club.

When I received an invitation to accompany the four foreign pilots visiting the National Races at Chicago, in order to see American aviation and obtain ideas on organising air races, I had no idea what I had in store.

The party left Waterloo on Sunday, Aug 10. Headed by Lt. Alford Williams, U.S.N., the American high-speed pilot, who, had it not been for hard luck and shortage of time, would have represented America in the last Schneider Trophy Contest and perhaps before long may be seen again with a high-speed entry. He was accompanied by Mrs. Williams, and the other members of the group were Herr Fritz Lohse, test pilot for the German Junkers company, an ex-German Navy pilot, who has lately been in China and Morocco, and Flt. Lt. Atcherley, R.A.F.

Leaving Southampton in the World's largest ship, the Leviathan, the first stop was Cherbourg. Here we were joined by Marcel Doret, test pilot for the French Dewoitine firm, who may be seen shortly flying a Dewoitine racing seaplane for France; with him was Madame Doret. Pietro Colombo, a member of the Italian High Speed flight, also embarked from Cherbourg, thus completing the representatives of Great Britain, Italy, France, and Germany, whom Williams had come specially to Europe to invite.

The six days crossing when three members of the group could not speak English, was most amusing It is amazing to see how aeronautical language by signs is internationally understood. Fritz Lohse started learning English immediately, his best effort being when a waiter dropped a spoon into some soup. Loose looked at the waiter, and exclaimed: "O.K. in the potage."

On arrival on Aug. 16 at New York, we were received by Mr. Brady, Chairman of the Mayor's committee on aviation, Mr. Henderson, the efficient manager of the National Air Races, and many of the leading pilots of the United States.

Mr. Leighton Rogers from the United States Department of Commerce personally arranged free entry for us all into America, so we had no Customs to deal with at all. After the reception at the Docks, we joined an automobile parade escorted by motor-cycle policemen down to Fourteenth Street, up Fifth Avenue, and through the Grand Central zone to the Ambassador Hotel in Park Avenue. A police escort must be the biggest thrill possible.

These motor-cycle policemen, by means of sirens, clear the streets of traffic for the escort. Actually we covered Broadway in five minutes, or over 35 miles per hour. The usual time taken is just under an hour.

Four days of entertainment followed. Ben Lyon, who is a pilot himself, and Miss Jean Harlow, the two chief members of the cast of the flying film "Hell's Angels" personally brought us an invitation to see the film which resulted in a charming evening.

A visit to the aerodromes around New York was arranged again with police escort. This time we reached, between Roosevelt Field and Valley Stream aerodromes, the speed of 70 m.p.h. At Port Washington in Long Island, we took turns at flying amphibians.

At a dinner given in our honour by James A. Talbot, Chairman of the Richfield Oil Co., we had the opportunity of meeting the leading figures in the American Aviation Industry. I had the good fortune to sit between C. S. (Casey) Jones, the well-known American racing pilot who is now the President of the Curtiss-Wright Flying Services, and Capt. Edward F. Rickenbacker, the most famous of American War pilots. Rickenbacker is Vice-President of the Fokker company. Tony Fokker now sells aircraft to the United States Air Services, and calls Rickenbacker, who had 19 German machines to his credit, his best War-time American salesman.

A charming lunch was given to us by Captain Paterson.

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the Lord Wakefield of America. This lunch was held in the Cloud Club, which is situated in a skyscraper, nearly 1,000 feet above the street. Here we met Clayton Knight, whose aeronautical drawings have become so well-known, and Richard Carroll, whose aviation articles in *Liberty* are making America "Air-Minded."

Another lunch was given by Elliott White Springs, author of those excellent books, "War-Birds," "Nocturne Militaire," "Leave Me With a Smile," and others.

A special police escort carried us through lower Manhattan to the City Hall where we were welcomed by Mr. James Walker, Mayor of New York. Our group left New York on Aug. 20 in a special carriage on the "20th Century Limited," for Chicago, and arrived there next day.

We expected to be received in Chicago by a rattle of machine-guns, but that is only a Press idea. Actually taking into account its huge population, Chicago holds a crime record well below a large number of American cities. In a tour of the underworld it was impossible to see anything outstanding. Gangsters only worry about rival drink gangs, and leave the ordinary person alone.

We were received at the station by consuls, aeronautical leaders and air race executives. A German Choral Society sang folk songs for Herr Fritz Lohse. Huge bouquets were presented to Madame Doret, and Mrs. Williams. Ten motor-cycle policemen escorted our cars round the city. Chicago presents a skyline of magic beauty; tall skyscrapers bound the beautiful Lake Michigan which itself appears to be a great sea. At night it is a city of lights which cannot be beaten for sheer beauty. The Palmolive Building lays claim to fame because of the Lindbergh beacon being installed on its top. This light, which is on all night, can be seen 100 miles away.

There are nineteen aerodromes and two seaplane stations in the region of Chicago, including a Municipal aerodrome and Municipal seaplane station.

The National Air Race Committee held a lunch in our honour and here I met Hoot Gibson, the famous film star, a pilot himself, with his own aeroplane.

The National Aeronautic Association held a dinner attended by 1,400 people at our hotel, the Hotel Sherman, for Rear-Admiral Richard E. Byrd, of North and South Pole fame. Here we had the honour of meeting Senator Hiram Bingham, President of the National Aeronautic Association, Major Clarence Young, Director of Aeronautics and Assistant Secretary of Commerce, who gave us a charming evening at Sky Harbour aerodrome later on, David S. Ingalls, Assistant Secretary of the Navy and William P. McCracken, former Director of Aeronautics. At the Aerodrome we met some members of the "Junior League," which is a select girls' club of Chicago, they gave us a wonderful time during our visit.

Col. Robert McCormick, owner of *The Chicago Tribune*, entertained our party to a lunch. While on the subject of newspapers, I would not be surprised to hear that a large American newspaper has challenged a renowned English daily paper, to a high-speed seaplane race before long.

The "Early-Birds," a club whose membership is only open to those connected with the early days of flying and the "Quiet Birdmen," another club, both entertained us.

General Parker showed our group an Army training centre, and Admiral Crossley invited us to witness the march past of a Naval battalion.

We were introduced to Col. Lindbergh, and had dinner with Jimmie Doolittle, the 1925 Schneider Trophy winner. We attended with our Consul a huge parade in honour of the visiting pilots. Thousands of people crowded the pavements, and office employees tossed paper tapes from the windows of skycrapers while service squadrons flew overhead. In the Reviewing Stand, we were received by Mr. H. E. Reynolds, President of the Air Races, Admiral Moffett, and Colonel Turner, of the Marine Corps.

Private parties were numerous. One of the most interesting was given by the German Consul-General, to meet the trans-Atlantic aviators, Herr von Gronau, and his crew.

This is how "Air-minded" America entertains! We had all heard about the hospitality of Americans, but a visit to the United States can alone show what it really is. Common interest in aviation seems a wonderful bond, and a passport between nations.

THE GRAF ZEPPELIN.

On Sept. 10 the *Graf Zeppelin* arrived in Moscow with an escort of aeroplanes of the Red Army. After flying over the city for two hours it was landed on the Central Aerodrome. M. Baranov, head of the Military Aviation Service, welcomed Doctor Eckener on behalf of the Soviet Government. It is estimated that over a hundred thousand people were present to see the airship.

Dr. Eckener discussed the possible establishment of a regular Trans-Siberian air service by way of Berlin and Moscow, Irkurtsk and Vladivostok, and M. Baranov, writing in the *Pravda* stated "our rapidly-growing country sharply feels the need for quick and reliable passenger and mail communication. We are convinced that Dr. Eckener's visit will help towards a practical solution of this problem."

M. Malinovsky, chairman of a special Government reception committee, in a public statement, described the visit of the airship as of great political importance.

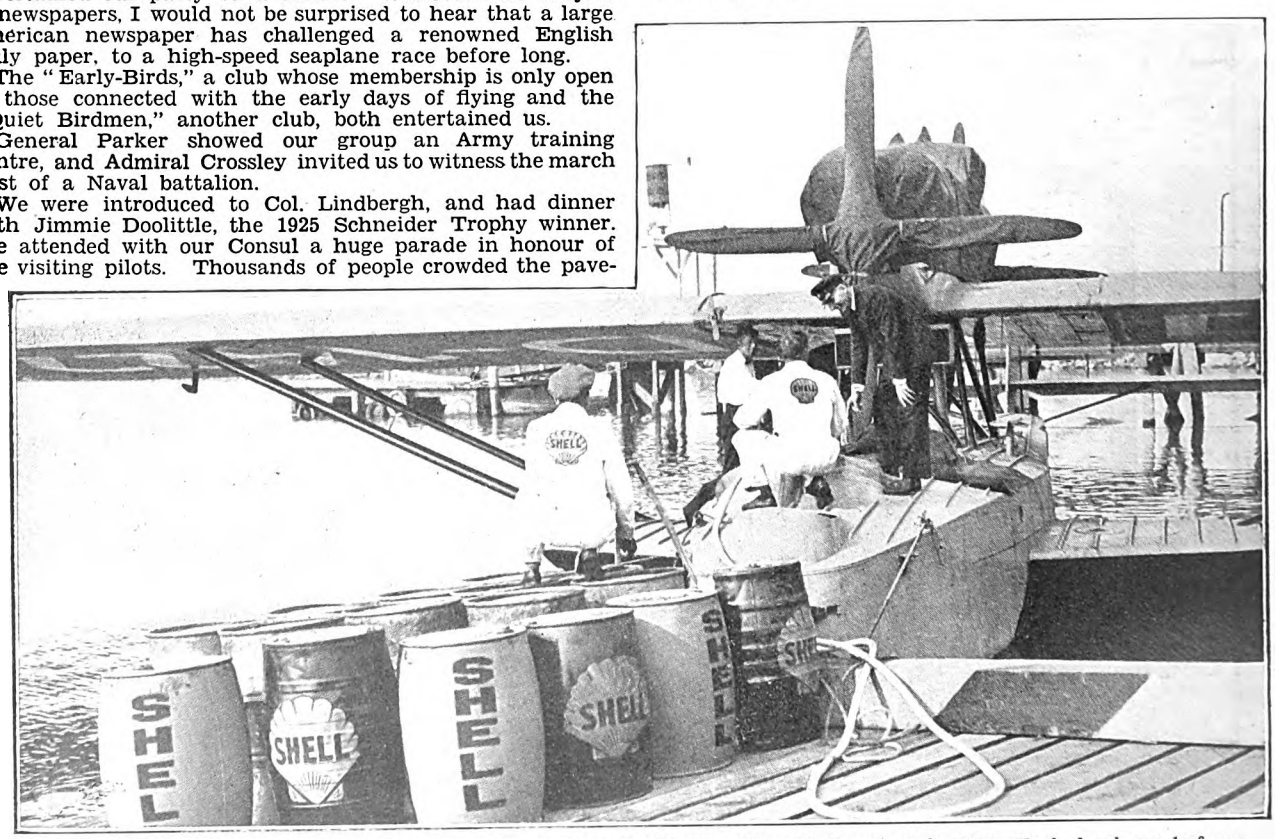
After much exchanging of *plaisanteries* in a stay of a few hours, the *Graf Zeppelin* left Moscow to return to Germany.

During the World Flight of the *Graf Zeppelin* last year the course eastward from Berlin, to avoid bad weather, was altered to miss Moscow. The reasons for the change were misunderstood and much resentment was expressed in Soviet newspapers. The object of the present flight was to allay any ill-feeling left by this misunderstanding.

During her flight back from Moscow the *Graf Zeppelin* was fired on near the Latvian frontier, but it is uncertain whether the shots were fired from the Russian or Latvian side of the frontier.

On returning from Russia the *Graf Zeppelin* flew to Geneva with twenty passengers. After circling Geneva the ship stopped over the aerodrome, where about 300 Swiss soldiers brought it down to earth in less than two minutes.

After an interchange of speeches delivered by Dr. Curtius, the German Foreign Minister, Dr. Eckener, M. Motta, the chief Swiss delegate to the League of Nations, and by the local aviation authorities, the *Graf Zeppelin* left again for Friedrichshafen.



THE RIGHT SPIRIT.—Herr Wolfgang von Gronau filling up with Shell petrol in New York harbour before leaving for Chicago to appear at the National Air Races.

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CAPT. C. D. BARNARD

AND

"TITANINE" DOPE.

CAPT. BARNARD WHO HAS ACHIEVED MANY FAMOUS FLIGHTS, WRITES:

"On my non-stop flights to Malta and return, and Tangiers and return in 2 days, I used a Puss-Moth coated with your dope and varnish. In fact, on all my record flights—India, Capetown, etc., 'Titanine' products have been used with every satisfaction."

***(Signed)* C. D. BARNARD.**

SOME OF CAPT. BARNARD'S FLIGHTS.

FLIGHT	YEAR	AEROPLANE
INDIA & RETURN	1929	FOKKER VII
INDIA & RETURN IN 7½ DAYS	1929	FOKKER VII
CAPETOWN & RETURN	1930	FOKKER VII
MALTA & RETURN IN 2 DAYS	1930	DE HAVILLAND PUSS-MOTH
TANGIERS & RETURN IN 2 DAYS	1930	DE HAVILLAND PUSS-MOTH

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THE FIFTH INTERNATIONAL AIR CONGRESS.

BY NORMAN MACMILLAN.

This Congress, which was held at The Hague, was first of all a triumph of organisation upon the part of our Dutch hosts. From the solemn opening ceremony—so cathedral in effect that it made my wife, who accompanied me, wish to cry—until the closing banquet, at which we were the guests of the Dutch Government, nothing was left undone for our comfort, our well-being, our interest, and our pleasure. If, beneath the placid surface of the hospitality which we enjoyed, the tremors of the machinery of organisation could occasionally be discerned, it but added to our certainty that those who looked after us were untiring in their efforts to uphold the prestige of Dutch efficiency expressed in terms of kindness.

The Congress was interesting, but, as the more technical aspect of the week will be dealt with in the publications which will follow, it is perhaps unnecessary to dwell upon it in brief here. Rather let me attempt to draw a picture of the social nature of the gathering.

It was fortunate that the opening days of the congress coincided with the 50th birthday celebrations of Her Majesty Queen Wilhelmina, for otherwise visitors from many countries would not have seen the beautiful decorations, the magnificent illuminations, the lengthy and gay procession; they would not have observed the serious and earnest Dutch given over to the spirit of carnival, to laughter, and such an expression of universal happiness as I have never seen elsewhere. And, wise provision, the sale of spirits was prohibited nationally on the day of festival. Wines and beers alone could be obtained by nationals and visitors alike. The bands of young men and girls dancing in the streets, the parades of boys wearing masks and other make-up, the mouth-organs which were freely played although (one was told) normally forbidden, the illuminated trees which were one mass of lighted orange globes, the buildings which were outlined with lamps or aglow with shining floodlights, the flaming torches which, with their reflections gleaming in the waters of the Vyversberg, were beautiful—all these made a memorable impression upon those who saw them. Crowds thronged the streets and with them one drifted in sheer consciousness of the national gaiety.

The Queen arrived by train from her country palace and drove through the revelling throng. No demonstration could have been more emphatic, democratic though the country is. And if the autocars which took members of the congress through the streets to see the illuminations and fireworks had to force-land their passengers in many places, it was only more proof of the exuberance of the celebrations.

The congress was declared open by H.R.H. the Prince Henry of Holland, the Royal Consort, who graciously attended in addition the two receptions and the closing banquet during the week. The first reception was arranged at the Kursaal on Tuesday, Sept. 2, and the second at The Palace Hotel, the following Thursday, each at Scheveningen. The former was the reception of the congress by the Government, and the latter the reception by the Town of The Hague and Scheveningen. Each provided ample opportunities of meeting members of the congress under most pleasant conditions. Many members had the honour to be presented to The Prince Henri at the first reception.

On Wednesday an excursion was arranged to visit Amsterdam. *Chars-à-bancs* took us to the station at The Hague and a special train; tramcars met us outside the station at Amsterdam and took us to the Carlton Hotel, where lunch was served. Thereafter the congress split into three, one party visiting the aerodrome of Schiphol by autocar, a second visiting the State Laboratory (the Dutch counterpart of the N.P.L.) and then joining forces with the third party which had proceeded, also by boat, to the Fokker works.

A larger boat waited for us after a brief visit to Fokker's and while tea and aperitifs were served we sailed along the North Sea Canal to view the great dykes which alone make Holland safe for the use of motor-cars. This boat finally put us down alongside Amsterdam Station whence we returned by special train to The Hague.

On Thursday some sections of the congress visited Waalhaven aerodrome, where they were taken for flights in the Junkers G38, while other sections attended meetings in the Ridderzaal to discuss their appropriate papers.

Friday saw us off upon another excursion after a morning devoted to lectures, this time to Rotterdam by autocar. We drove through Delft, and then Rotterdam (the Glasgow of Holland) and at the latter pulled up outside the Town Hall. A welcome by the Mayor, a reply by the President of the congress, M. l'Ing. J. F. de Vogel, who is President of the Royal Dutch Aero Club, and then a tour of the municipal building (which was completed in 1915) preceded our boarding a boat for an inspection of the port of Rotterdam and a picnic luncheon, followed by a visit to the Aviolanda works in Papendrecht, to which we sailed.

We saw Dornier Wals in construction (square tubes in many parts, and fabric covered wings) and three American aeroplanes, the Curtiss Falcon, Hawk, and Robin, left by the Doolittle circus at the Aviolanda works, who may possibly make them under licence, we were told.

Thence we sailed back to an accompaniment of tea, cakes, sherry and port to the autocars which took us safely back, part of the way along a magnificent highway, to The Hague.

The closing ceremony took place in the 13th-century Hall of the Knights, The Ridderzaal, the earliest extant building in The Hague, standing baronially in the middle of the Binnenhof, about whose ancient square arises the parliamentary and ministerial buildings of the Dutch Kingdom. Here Wing Cdr. Kingsford Smith was presented with the Gold Medal of the Royal Dutch Aero Club.

The week was capped by the banquet at the Kursaal at which The Prince Henry was the principal guest. Each member was the recipient of a memorial plaque, given by the Government. At the end of the banquet the speeches were admirably short; they were followed by two films, one educationally inclined regarding the new K.L.M. route to the Dutch East Indies, the other, equally, if not more, propagandist in its nature, regarding transport air lines in the U.S.A. Thereafter came dancing which is, if anything, even more international than aviation.

This concludes a brief description of a very pleasant week. Enough has been said to show that we were well looked after by way of interest and entertainment. Efficiency went further, for every hotel in The Hague and Scheveningen had specially reduced terms to offer members of the congress. The sessions were well presided over, order and attention were well kept, and the whole course of the week run to an ordered schedule which made things easy for a gathering representative alike of diversity of opinions and of nations. Finally, it was decided that the next congress would meet in four years' time in Paris, at the invitation of the French Government, and thereafter at intervals of three years.

SCIENTISTS AT YEOVIL.

Thirty members of the Engineering Section of the British Association for the Advancement of Science visited the Westland Aircraft Works and Petters Ltd., at Yeovil, on Sept. 9. The Association was holding its 98th annual meeting at Bristol at the time. The party went round the engine works, power house, foundry, machine and erecting shops under the guidance of the chairman of the firm, Sir Ernest W. Petter, and then visited the aircraft works to see the various types for which the firm is well known in all stages of their manufacture.

Considerable interest was shown in the Westland Wessex (three Genet Majors), which is attracting the attention of commercial operators with its ability to cruise at 95 m.p.h. for 5½ hours and to continue on two engines if one should fail.

The visitors were afterwards entertained at the firm's canteen.

MISS SPOONER'S PARACHUTE DESCENT.

Miss Winifred Spooner made a voluntary parachute jump with the Irvin Parachute Training Equipment on the evening of Sept. 10.

Miss Spooner went up with Mr. Leslie Irvin in his Ryan Cabin Monoplane (Wright Whirlwind) from his private aerodrome at Ashwell, Herts, and at the height of 2,000 feet opened the cabin door and jumped out. She pulled the ring and the back pack immediately opened. During the descent she opened the second pack and descended with both parachutes open.

She alighted safely, still holding both the rip-cord rings. R.A.F. personnel who have been chidden for losing their rings will appreciate this point.

The Training equipment used by Miss Spooner consists of two separate parachute packs, one of which is worn in front and one behind the parachutist. Miss Spooner regularly wears an Irvin parachute herself and prefers her passengers to wear one.

NAPLES—GIBRALTAR.

An experimental Italian passenger-carrying seaplane service between Naples and Gibraltar, co-operating with the Lloyd Sabaudo steamships, which ply between Naples and New York, by way of Gibraltar, began on Sept. 1. The first seaplane flew to Gibraltar from Naples to meet the incoming American mails and flew them safely to Naples.

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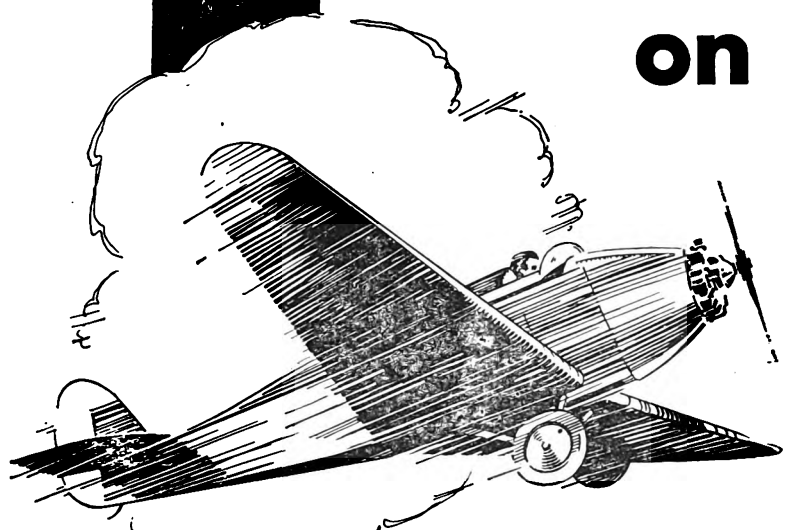
New World's Records on Mobiloil



Duration

The French lady aviator Mlle. Maryse Bastie, flying a

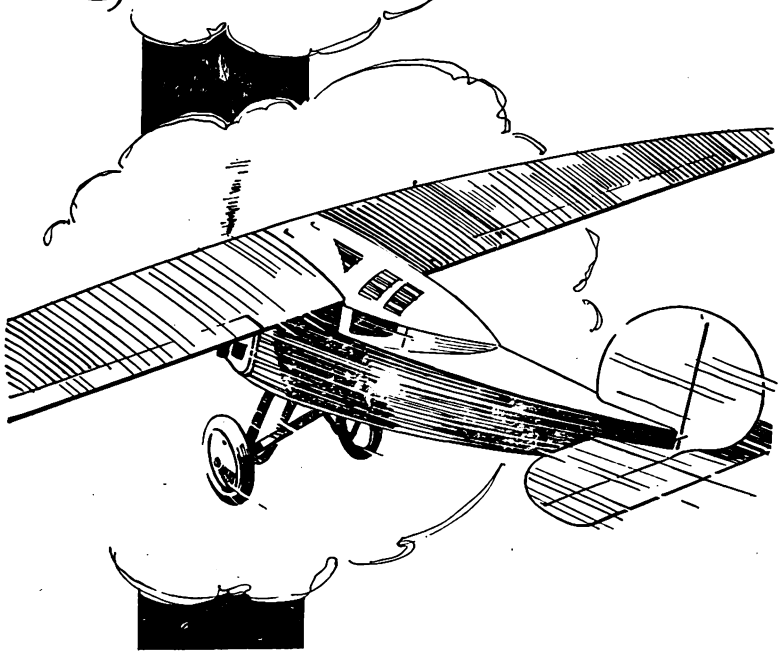
KLEMM Monoplane

Salmson Engine

lubricated with Mobiloil, has established a new woman's World's Duration Record for light aeroplanes remaining in the air

37 Hrs. 28 Mins. 43 Secs.

(Subj ct to confirmation)



Distance

Mons. Laulhe, flying an

ALBERT Monoplane

Salmson Engine

lubricated with Mobiloil, has established a new World's Distance (closed circuit) Record for light aeroplanes of the third category by covering

2,714 Kilometres

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For Endurance and Reliability use

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THE *Quality* OIL

VACUUM OIL COMPANY, LTD., CAXTON HOUSE, LONDON, S.W. 1.

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GROSVENOR CUP

again won on Pratts!

This notable event has again been won on Pratts—this year by Mr. F. L. Turnbull flying a Cirrus Moth on

Pratts HIGH TEST and BENZOL

also FASTEST TIME

The fastest time was achieved by Capt. E. W. Percival flying a Hermes-Hendy at a speed of 125½ m.p.h. on

AVIATION PRATTS SPECIAL

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THE LIGHT AEROPLANE
AND THE FLYING CLUBS.

NIGHT-HAWKS AT HESTON.

On Sept. 10 Heston Aerodrome was the scene of a cheery nocturnal party when the night-flying season of one week was opened. The inauguration was a day late because of weather, and even on Tuesday night the low clouds and subsequent rain limited the possibilities without being able to discourage the Airwork pilots and members entirely.

The Daily Express next morning contained the following account, which is rather too good to miss:—

Shortly before midnight last night Captain V. H. Baker, A.F.C., chief pilot in the Air Force at Heston Aerodrome, gave the first demonstration ever made of night aerobatics.

Thousands watched his performance from the brilliantly-lighted aerodrome.

The green and red navigation lights on the wing tips whirled merrily in the sky. Climbing up to nearly a thousand feet he pitched the machine forward with a roar, and with only the lights visible from the ground he made the first loop in the dark.

"It was a most amazing experience," he said afterwards. "You can see absolutely nothing but your own wing lamps and the lights on the ground. As the machine swings over in a roll the only sensation is that the whole world is turning round you.'"

The poetry and imagination of this excerpt is such as to preclude any attempt at competition, and all we can do is redirect the reader a little nearer the truth in spots.

Mr. Baker is chief of the noble band of staff pilots at Heston, but we understand they lay no claim to be considered an Air Force, especially with capital letters. Furthermore his and his colleagues' interesting show on the night in question hardly ranks as the first ever given of aerobatics at night. Of the thousands who watched less than a hundred were on the aerodrome because it was an affair of members, their friends, and the Press. Actually there was a display of night-flying at Hendon before the War 1914-18.

Two Airwork Moths were wired for night-flying for an enterprising innovation, not of nocturnal aerobatics but of instruction in flying by night for those who want to complete their necessary training as pilots. It is the first effort which has been made in this country towards enabling private pilots to practise this very necessary branch of flying—necessary because any pilot may be faced with the necessity of landing in the dark at some time or other. Airwork are, as usual, in the forefront of progress and deserve credit for the expense, trouble and enterprise of the project.

The field was surrounded by boundary lights and all obstructions were surmounted by the red warning lamps. Petrol flares flickered out on the field during the flying period and a big floodlight thrust a sheet of radiance clear across the landing area with the aid of a hot and pandemonious Fordson tractor behind it.

With students and joy-riders by turns the two Moths, piloted by Messrs. Baker, Mahoney, Newman and Parks, took off from the glare and circled the field under the low clouds, sometimes disappearing in the fringes. Their progress, and occasional aerobatic evolutions, could be followed by their navigation lights.

In the control tower a searchlight served for inspection and illumination of the grounds below, and control signals were given to the aircraft by means of the usual Aldis lamps. While the Moths were definitely either up or down the tractor desisted from its laboured revving and the flood of light retreated to a red glow, but when the flashing navigation lights signalled for a landing it grew again to fan-shaped brilliance.

Round the Club-house a goodly number of members and friends looked on from the comforting glow of a couple of braziers. It was a pleasantly informal party, and its members were variously attired in business suits, sports clothes, flying togs, evening dress, and the occasional mess kit of a Household Brigade regiment.

The opportunity of doing some night flying is being eagerly seized by a good many amateur pilots, and more would probably put in some practice in their own machines but for the cost of wiring them up. The business of leading wiring through wings, etc., is troublesome, but even so there is no real reason why navigation lighting should cost a Moth owner anything near £20, which is approximately the figure,—and rather conservative than otherwise.

Considering that more aerodromes will be equipped for night flying as time goes on, and municipal aerodromes will be so as a matter of course by the time their inevitability has dawned on the city fathers, the equipment of ordinary machines for night flying ought to be a good sideline for some enterprising electrical firm. Nobody is going to make any money from it at present rates, though, because the first cost will deter any but the really wealthy, and we await a reasonable explanation why the lamps alone should cost more apiece than a quite serviceable motor-car head-lamp.

THE PUSS-MOTH IN NORTHERN EUROPE.

On Sept. 10 Colonel the Master of Sempill, who is making a holiday tour of Scandinavia and the Baltic States in a D.H. Puss-Moth seaplane (D.H. Gipsy III engine), flew from Stockholm to Tallinn (Reval), Estonia, across the Baltic Sea.

On Sept. 11 he flew from Reval to Helsingfors, Finland.

At each place he took up as passengers several of the important personalities of Estonia and Finland, including the Chief of the Estonian General Staff and the Chief of Staff of the Finnish Air Force

DARK AND STORMY.—The Airwork Moth in the picture looks like the start of a dawn patrol, but is actually taking off from Heston Aerodrome by floodlight. The light effect is noticeable on the wet grass.

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WINDING UP THE SEASON.

NOTTINGHAM.

The final week-end of the National Flying Services series of meetings was celebrated in the Midlands and North on Sept. 13 and 14. Even at a distance it started none too propitiously with a great deal too much low cloud and intermittent rain from Hanworth to the Nottingham Aerodrome at Tollerton on Friday evening. We, in *Leone*, the N.F.S. Giant Moth (Jupiter), poked gingerly through the fringes of the mist over the Chilterns, where there was little clearance, but made better going later as Mr. Howard discreetly took to the valleys.

At Tollerton on Saturday the visibility began by being thoroughly bad and improved scarcely at all during the day. None the less a Spartan was observed circling very, very slowly in to land at four minutes to twelve and landed a minute and a half too soon to win the arrival competition. In the clouds overhead Lt. Col. Louis Strange had conducted a hot argument with Mr. W. A. Andrews on correct times, Greenwich, daylight-saving, etc., and the result was that Mr. Allen, coming Northward in haste and a Sports Avian (Hermes), won the event three minutes later.

The parade and fly past brought out all the current and popular types of light aeroplanes including the Robinson Redwing and the Autogiro, which arrived just in time with Mr. and Mrs. Rawson. The take-off and climb of the Spartan three-seater and the Spartan Arrow were especially admired

Six machines faced the starter for the Nottingham Air Race, which was run over four laps of a seven-mile course, all within sight, and the visibility was just such that the entire race could be watched. It developed into a series of duels, with Mr. Andrews in the Spartan Arrow gradually overhauling Mr. Boyle in a Bluebird, and Col. Strange's three-seater in hot pursuit of Mr. Pennington in a Moth. On the last lap Col. Strange's unexpectedly fast machine nosed out the Arrow, which had just passed the Bluebird, and won the Cup with the other Spartan second.

Flt. Lt. H. M. Schofield, chief pilot for N.F.S., demonstrated in a Moth (Cirrus III) how aerobatics should be done. His finesse is quite beautiful to watch, more especially as aerobatics were not done to death in the programme. The difficulty of varying the bill is well known by now to all who conduct fêtes, pageants or plain flying meetings, and the perfect programme has yet to be drafted; but in general they run rather to aerobatics of an inescapable sameness even though they be done by excellent pilots.

A race between five or six dirt track motor-cyclists and the Autogiro might be criticised as irrelevant from the legitimate flying viewpoint, but as long as flying meetings are a more or less necessary means to public airmindedness so long will some illegitimate gingering-up be a commercial necessity. Anyway, Mr. Rawson successfully showed the ability of the Autogiro to fly more slowly than motorcycles ridden at breakneck pace and Mr. William Wing won the prize with a most daring exhibition of speed over a surface none too smooth.

Thereafter the Nottingham Gliding Club pulled out into the rain a disconsolate-looking Zogling and made several pull-offs. The broadcaster explained to the crowd the purpose of the event, which was to illustrate the means of starting a training glider, but the benefit to gliding of a public exhibition under such unfavourable circumstances is highly doubtful.

Flt. Lt. Schofield's aerobatics in a Desoutter (Hermes) have been described in these columns before, and they are an unfailingly popular turn, even to those who have seen them many times before.

The bombing of an "oil depot" provided the noise beloved of the populace and their young, and Mr. Flynn took up the Redwing (Hornet) for a little crazy flying. The manœuvrability of this side-by-side machine seems to improve at each appearance, probably as it becomes better known to pilots.

As the rain continued and parachuting was impossible Mr. John Tranum walked wings—and other things. Even flying of doubtful legitimacy is a more useful and seemly form of entertainment than aerial circuses, however daring. The glee of the crowd was no more in doubt than is Mr. Tranum's nerve, but even on a dud day there should be other and more dignified means of giving the gate its money's worth.

The sky was much too overclouded for the demonstration of sky-writing which was to have been given by Mr. Sidney St. Barbe. However, he flew the S.E.5 up and down the enclosures and emitted volumes of vapour which were quite odiferous enough to impart the necessary thrill. The wind carried the smoke rapidly away so that no inconvenience was caused to machines using the aerodrome or to the spectators.

Incidentally Mr. St. Barbe's dog became quite a centre of attraction. The intelligence of a hound who knows the difference between aeroplanes was quite enough to impress the visitors. "Shot" travels with Mr. St. Barbe on his aerial occasions, even on sky-writing trips, and proves his experience by making for the front seat of a Moth or the luggage locker of an S.E.5, according to which one his master is using. His flying time is said to be about 270 hours.

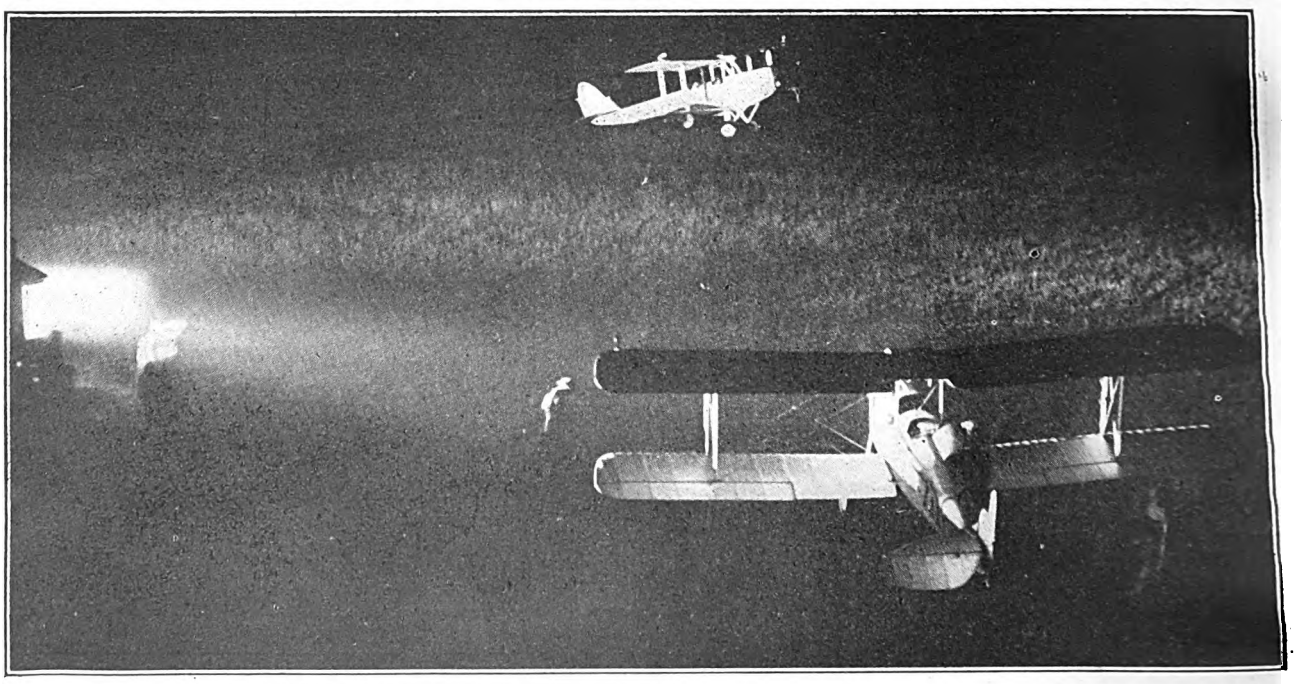
The prizes were presented, at the request of Lt.-Col. I. A. E. Edwards, managing director of N.F.S., by Miss Robinson, the first A licence pilot trained at the Nottingham Flying Club.

Among the visitors were the following:—

Moths (Gipsy I), Messrs. Pennington and Shipside. Puss-Moth (Gipsy III), Mr. Stewart David. Desoutter (Hermes), Mr. Findlay with Col. and Mrs. Edwards. Avian (Gipsy), Mr. Cantrill. Avian Sports (Hermes), Flt. Lt. and Mrs. G. Stainforth and Mr. Allen. Spartan Arrow (Hermes), Mr. Cliff. Spartan three-seater (Gipsy II), Col. Strange and Mr. Andrews. Bluebird (Gipsy I), Mr. Boyle. Redwing (Hornet), Messrs. Robinson and Flynn. S.E.5 (Hispano Suiza), Mr. St. Barbe.—F. D. B.

AT SHERBURN-IN-ELMET.

Early next morning the visitors of the previous day prepared almost *en masse* to go on to Sherburn-in-Elmet, where the Yorkshire Aeroplane Club were holding their last meeting of the season. The only people who left on the Saturday were Flt. Lt. and Mrs. Stainforth who started back for



MOTHS IN THE LAMPLUGHLIGHT.—On the ground at Heston during the Night-Flying. Would-be night fliers are anxious to know the extra insurance rates demanded by the British Aviation Insurance Group.
—("Aeroplane" photograph.)

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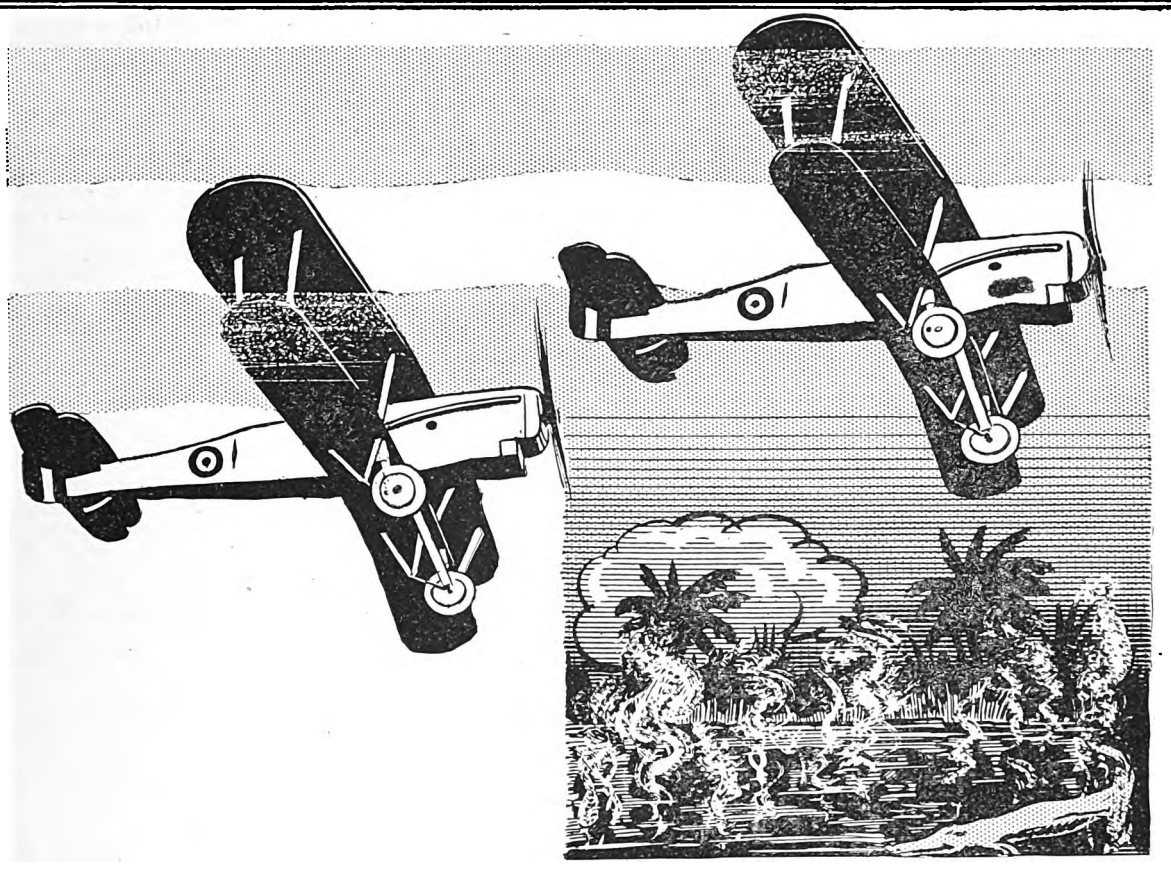

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Heston at 18.45 hours into a distinctly sticky-looking prospect. Half an hour after they had gone the mist closed down on the hills.

In the morning it was slightly better and Tollerton quickly became almost deserted; all except for one Desoutter, our own vehicle. A leak in the tank had been repaired overnight and the said tank replaced, secured and battened down with strips of doped fabric. Five minutes after the take-off Mr. Findlay noticed peculiar reactions among the control surfaces and came back with due care. Inspection of the tail-unit showed everything in order, but on the roof two of the fabric strips had made themselves into air brakes and, which was worse, very efficient "burblers" of the slip stream. Hence the peculiar wobble in the controls. [Which only shows how much there is to learn.—Ed.]

We circled over Sherburn an hour later to allow the racers, who could be seen pursuing each other, to fight it out and land, and we noted with satisfaction that the enclosures were very well filled indeed, and the car parks crowded. That there was a much stronger wind than at Nottingham had been obvious since passing Doncaster, but the sky was less overcast and there seemed less prospect of rain than there had been for two or three days past.

We landed to find that Col. Strange had again flown his Spartan three-seater in the forefront, just beating Mr. Pennington in a Moth (Gipsy). His time was 98 m.p.h. or four miles per hour slower than his Saturday's average, which was easily accounted for by the half gale which blew throughout the race and the meeting. Mr. J. D. Irving averaged 102 m.p.h. to get third place in his Moth (Gipsy). Mr. Allen flew a fast race both at Nottingham and Sherburn in his Avian Sports (Hermes), but the handicapping was a little against him.

Mr. Irving had flown from Newcastle and won the arrival competition.

The Autogiro was able to give a more than usually striking display with the aid of the wind. Mr. Rawson, taking a passenger for wisdom's sake, parachuted upwards over the aerodrome, and when he had gained sufficient height he flew backwards quite briskly hanging on his two rotary members. The bumpiness troubled him slightly as he landed and caused him to bounce. However, the Autogiro hit the same spot again with great exactitude and squatted with an air of finality which convulsed the crowd.

The race against the cyclists was cancelled because of the wind, and the dirt-track experts raced among themselves over the slippery grass, but with the aid of murderous looking spikes on their tyres. And one felt glad that it was not a Hunterised aerodrome with Mr. Hunter looking on at the destruction of his work of art. Mr. Atkinson won.

Flt. Lt. Schofield put up his usual fine show in the two types of aeroplane, Moth and Desoutter, and Mr. R. R. Bentley did some crazy flying in his Moth (Hermes). Bombing events were used to provide the comedy and noise.

Incidentally the setting used, a level crossing, has become standard in this part of the country for public bombing attacks. The neighbourhood of Hull, especially, seems to be so liberally sprinkled with level crossings, and the delay to the public is so freely commented upon by residents, that the first N.F.S. pageant there, at the opening of the Hull Aeroplane Club, was featured by a set of the too-familiar gates and the objectionable intersections were bombed in effigy.

In spite of the strong wind Mr. Tranum offered to make his jump as on the programme, and landed some distance outside the aerodrome in spite of a distinctly delayed drop and much slipping on the way down. His drift at height was obviously very fast indeed.

The Yorkshire Club is the strongest N.F.S. club in the provinces. With 300 members it has 46 A licences and one B licence among club-trained pilots. Pilot-instructors Worrall and Love are kept quite busy with four machines, and the Club has flown more than 250 hours each in two separate months during the summer.

The Clubhouse at Sherburn is less pretentious than the Tollerton building because it is a War-time structure which was most opportunely vacant. The distance of Sherburn from either Leeds or York seems to be no deterrent to judge from the amount of flying done.

The machines present included the following:—

Moths (Gipsy), Messrs. Irving and Pennington. Moths (Cirrus III), Messrs. Russell and Love (N.F.S.). Moth (Hermes), Mr. Bentley.
Avian Sports (Hermes), Messrs. Allen and an unidentified pilot in Mr. Gordon Selfridge's machine.
Bluebirds (Gipsy), Mr. Dick and Mr. Norman Blackburn.
Spartan (Hermes), Mr. Cliff. Spartan (Gipsy II), Col. Strange.
Desoutters (Hermes), Messrs. Findlay and Schofield (N.F.S.).
Robinson Redwing (A.B.C. Hornet), Mr. Flynn.
Widgeon (Cirrus II), Miss Leathart.
Giant Moth (Jupiter), Mr. Howard (N.F.S.).

Lt.-Col. and Mrs. I. A. E. Edwards flew up in a Desoutter from Nottingham and left after the programme ended. Flt. Lt. R. L. R. and Mr. D. F. W. Atcherley were also among the visitors, and Mr. Robinson, designer of the Redwing.

This was the third flying meeting at Sherburn in the present season, so the wonder is that the third gate of over 10,000 people were content to turn out and look on. But they did, and furthermore they patronised the taxi machines to such an extent that joy-riding was quite continuous from before lunch till late in the evening, except during most of the events on the programme. One party, consisting of Lady Bannerman, Mrs. and Miss Oakes, and Miss Peel, came with the Giant Moth all the way from Nottingham and flew back after the meeting.

Next morning, after everything was over and practically cleaned up again, the weather consented to clean up too and the flight back to London was done at an average of 100 m.p.h. in the Giant Moth through beautiful sunny weather.—F. D. B.

THE FALKIRK MEETING.

Scottish flying meetings are still a comparative rarity, and at this time of year it requires the hardihood for which the Scots are famous to bring one off successfully. Nevertheless, the Falkirk, Grangemouth and East Stirlingshire Publicity and Development Association organised a flying meeting on Sept. 13 in a field between Grangemouth and Falkirk. In spite of rain that was practically unremitting seven machines performed, and several thousand people watched them perseveringly throughout.

Mr. Kennard flew his Klemm (Salmson) in a successful demonstration, making the most of its slow-flying possibilities and capacity to forgive abuse.

A formation flight of Moths (Gipsy) was led by Mr. J. C. Houston, chief instructor of the Scottish Flying Club. Three machines took the air originally, but before the exhibition ended the Marquess of Douglas and Clydesdale arrived in his Moth and joined in.

A balloon-bursting demonstration was also given, and the bombing of a car roused the unspoiled populace to mirth and awe.

NIGHT-BIRDS.—Mr. and Mrs. Nigel Norman and Mr. Baker at Heston during the night flying. The apparition on the right is a petrol flare, not the aerodrome ghost. —(*"Aeroplane" photograph.*)

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In an address to the spectators the Marquess of Douglas and Clydesdale urged the development of more landing-grounds in Scotland such as the one contemplated at Falkirk. Most of the large towns in England had made provision for a field, but Scotland was not yet ready for the important part aviation was destined to play in that country. He himself found a light aeroplane about as cheap as a car, much faster, and as reliable as the weather permitted. He hoped that a flying club would spring up as soon as the Falkirk aerodrome was established. He gave point to his address by an exhibition of aerobatics in the rain.

Among the distinguished visitors were Provost W. Smith, of Falkirk; Provost Burnett White, of Grangemouth, and Capt. C. A. Salvesan, M.C., who formally opened the meeting. The flying programme was arranged by members and staff of the Scottish Flying Club, and its success was largely the result of their efforts.—H.

THE GENERAL COUNCIL OF THE ASSOCIATED LIGHT AEROPLANE CLUBS.

A meeting of the General Council of the Associated Light Aeroplane Clubs was held at the Royal Aero Club on Aug. 14. Those present were:—Col. Sir Joseph Reed (Newcastle-on-Tyne) in the Chair; Bristol and Wessex, A. H. Downes-Shaw, and Flt. Lt. L. P. Winters; Hampshire, H. J. Harrington and Graham Gibbs; Hanworth Park, Lieut.-Col. I. A. E. Edwards and G. E. P. Boyes; Lancashire, Mr. Alan Goodfellow; Liverpool and District, W. F. Davison; Leicestershire, R. C. Winn; London, Major K. M. Beaumont; Midland, Major G. Dennison; Newcastle, B. M. Dodds; Suffolk and Eastern Counties, C. M. Prentice. In attendance H. E. Perrin (Secretary) and B. Stevenson (Asst. Secretary).

[Judging from this list, those clubs which are absorbed by National Flying Services Ltd., as the Yorkshire Club has been, lose their representation on the General Council.—Ed.]

The General Council considered the draft of the new subsidy agreement and drew up its recommendations. The Council afterwards attended a Conference at the Air Ministry, Gwydyr House, Whitehall, under the Chairmanship of Mr. F. G. L. Bertram, the D.D.C.A. at which the Agreement and the recommendations of the General Council were fully discussed

The question of a group insurance amongst all the Associated Light Aeroplane Clubs was discussed and it was decided that the Insurance statistics for the last two years should be collected with a view to preparing a scheme for the consideration of the General Council.

FLYING AT LLANDUDNO.

The Llandudno Flying Week started on Monday, Sept. 15, with operations by Northern Air Lines Ltd. Programmes later this week will be more ambitious, and are to culminate in a full meeting over the week-end, to which all pilots are cordially invited.

Passenger flying is proving so popular as to cause a rush during the latter half of the day.

ACTIVITY AT LYMPNE.

In spite of bad weather during August the machines of the Cinque Ports Club made 387 flights, which made a total of 141 hours 50 minutes in the air,—with three aircraft in commission. This is really an excellent result, especially as solo flying was much restricted during the first fortnight of the month owing to congestion on the aerodrome, and in the surrounding atmosphere during the presence of No. 601 Squadron, A.A.F.

The lifting of the Air Ministry's ban on the acceptance of foreign subjects as members has produced immediate results, and amongst pupils under training this week were an Indian from Ceylon, an Italian and a Chinese subject. The Club already had an American, a Frenchman and several Indians as members, and expects shortly to sign on two more French subjects and another Chinese.

Mr. Brown is becoming quite expert at translating the various accents and dialects which pass over the telephone in the air, as he had some excellent training at this earlier in the season when some of our Irish friends were here.

There is no truth in the rumour that the Ground Engineer is holding Evening Classes in the Lancashire dialect.

ANOTHER CLUB IN THE NORTH.

The Preston and District Light Aero Club is the name of a proposed organisation at Preston, Lancashire. A committee has been formed to visit the Lancashire Aero Club by invitation, and will report to a meeting of prospective members and interested persons.

MOTHS AT CANNES.

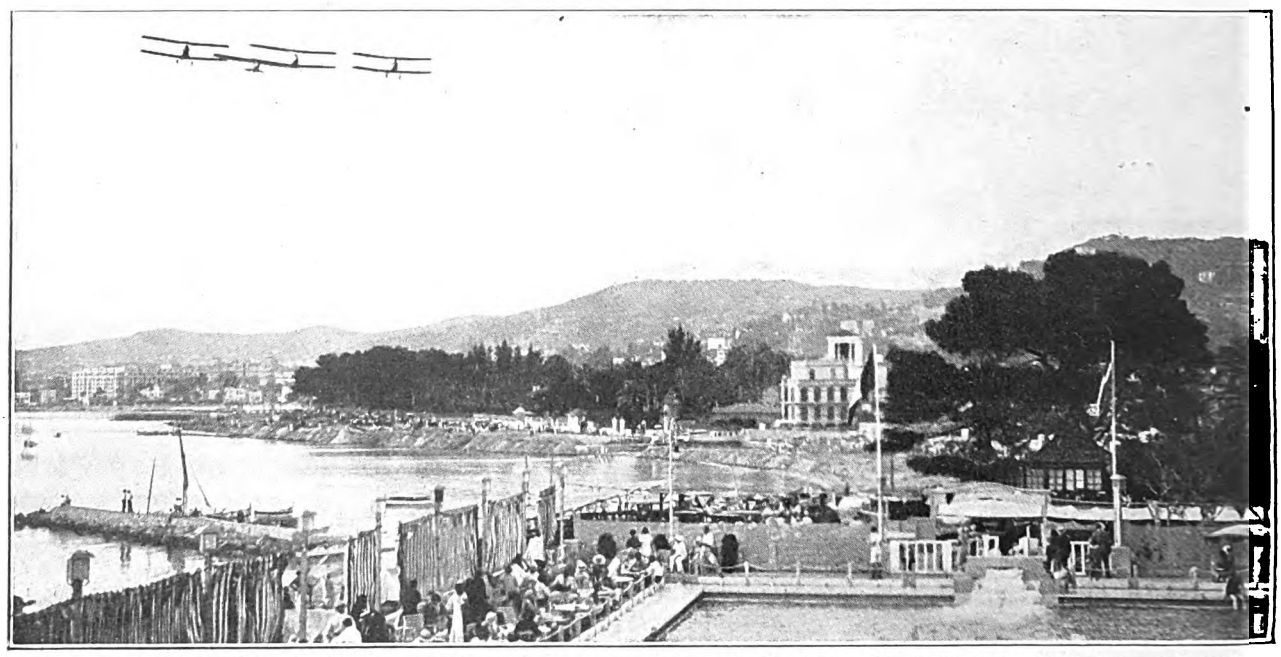
The presence of a number of Moth and Puss-Moth owners enabled the local "Syndicate of Initiative" at Cannes to organise an "Aerial Manifestation" for the amusement of their visitors last week.

Four owners consented to perform, Captain de Havilland in his Puss-Moth; Major Cordes flying Mr. F. N. St. Barbe's Gipsy Moth; the Comte de Beauregard, a French owner, in a Gipsy Moth; and Mr. Edouard Bret, a very keen and competent pilot, flying Mr. Butler's King's Cup and European Tour Moth, which he has just bought.

The Show started with an excellent demonstration of formation flying round the Palm Beach Casino along the sea-front. Afterwards each pilot gave an individual show. Captain de Havilland started by demonstrating the silence and comfort of the Puss-Moth by flying low down, well throttled, and being clearly seen in the cabin smoking a cigar. Major Cordes then gave a display of slotted flying, which was probably not appreciated as it was too scientific to be understood. And the two French pilots each gave a good show of aerobatics with loops, rolls, spins, and so forth.

The Display was watched by a large number of people, and there was quite a deal of applause.

M. Bret, who is an exceedingly good pilot, is the son of a well-known officer in the French Army (retired). Mme. Bret owns the Hotel des Anglais, and she and her son are always ready to welcome English private owners and arrange accommodation at the aerodrome for them, fix up petrol and oil supplies and give general attention.



AS AT STAG LANE.—A Moth—cum Puss-Moth—formation over Cannes. All four are privately-owned and just happened to be staying there.

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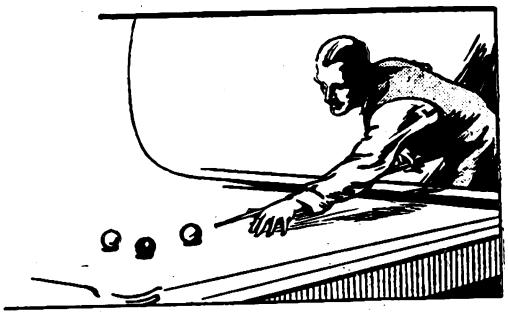

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"The Sailplane."

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The interest which is being shown in "The Sailplane" is encouraging, but the support which it is receiving from the fifty or sixty gliding clubs which say that they exist in this country is not great enough to convince the proprietors of "The Aeroplane," as yet, that the Gliding Movement is strong enough to support a paper of its own, or keen enough to want one. The next three or four weeks must decide whether "The Sailplane" will be continued or not.

ENGLAND—AUSTRALIA.

On Sept. 16 Mr. F. R. Matthews, lately Assistant-Instructor to the London Aeroplane Club, left Croydon in a Puss-Moth (Gipsy III) in an attempt to beat Sq. Ldr. Hinkler's record from London to Port Darwin of 15½ days.

Thus any hope of making a race to Australia is destroyed. There is no prize on offer, and the various aspirants for record honours lose the publicity and consequent possible reward which would have gone with a race, even if they agreed to race without a prize. Also they miss doing the good to aviation which would have been produced by popular interest in a race.

We hope that all will arrive safely and will not come to grief as the late Mr. Hook did, and as Miss Johnson nearly did, by insufficient knowledge of their route. For example a compass course to Rangoon takes a pilot over mountains which need not be crossed. If the pilot skirts the mountains till they end and then turns left he arrived in Rangoon over flat country. Both Sir Alan Cobham and Sq. Ldr. Hinkler have pointed this out. Mr. Hook lost his life through not knowing it.

Also a correspondent in the Netherlands Indies sends some very interesting comments on Miss Johnson's recent journey through that area. His views agree curiously with certain comments in this paper (which could not have reached him before he wrote) concerning the slap-dash, hit-or-miss way in which Miss Johnson's gallant but poorly organised flight was made. That she should have got through is evidence of her pluck, but the whole affair is typical of our English way of making up in pluck what we lack in foresight and the capacity for taking trouble beforehand. The East Indian correspondent writes as follows:—

Recently Miss Amy Johnson, on her way from England to Australia, was passing the Netherland Indies in her Moth. I admit to have a deep admiration for the wonderful pluck she displayed by beginning and finishing successfully that splendid achievement. Yet I feel obliged to criticise the fact that she made here two landings on not prepared fields, failing to locate the official landing-grounds on this route, one of which, in Mid-Java (Tjomal), was situated only 10 km. (6 miles) from her landing point, where she slightly damaged her plane, the other in Timor (Haliloelik), which was about 24 km. (14 miles) from her landing point. Each time she afterwards flew over her machine to the proper field.

Of course there will have been reasons why Miss Johnson did not locate the proper fields at once. But landing outside of the official landing fields is extremely dangerous for the plane in our Indies, especially in the wet monsoon, and I should warn anybody to avoid this. Miss Johnson has got an awful lot of good luck to have got out with as little damage as she did.

I know a little of long-distance flying, having made myself a trip Holland-Java by air, but I declare it necessary to dispose of good charts of our Archipelago, indicating the accurate location of our landing fields, in order to avoid unnecessary risks. I do not believe Miss Johnson to have relied on her luck only, but I believe her to have underrated some of the difficulties.

As the success of Miss Johnson will undoubtedly stimulate sporting traffic on this route, it would be regretful if her successors were going to show the slightest neglect of the necessary measures. Otherwise quite unnecessary risks will be introduced in a trip to Australia by airplane, and that will do no good in the long run. So I suggest that future air-tourists will provide themselves with a complete map of our air-routes and landing fields, which can be obtained at our Government Office for Air Traffic at Bandoeng (Java).

MANY INVENTIONS.

Everybody at Croydon Aerodrome was deeply affected by the tragedy which overtook the Belgian night mail plane near here early on Thursday morning, and profound sympathy is felt for the relatives of M. Sobry, the pilot, and of M. Cooremans, the flying engineer. We were the more annoyed, therefore, at about 09.00 on the morning of the accident to be lightheartedly and offensively approached by a ghoul in search of a photograph of the Belgian pilot. This creature was said to be a Press photographer, and one is pleased to say that he failed in his unhallowed quest, for no photograph of the pilot appeared in the newspaper which employs him. It is not what such a man has to do in the way of duty which offends, but the way he does it. And the other morning we really felt the lack of a good slimy duck-pond upon the aerodrome into which it is permitted to shoot refuse.

Somebody has been making merry with that solemn feature of the landscape the Clifton Suspension Bridge at Bristol by flying under it in an aeroplane. According to *The Daily Mail*, this has not been done since Alan Cobham flew under it in 1912. We do not know how old Sir Alan was in 1912, but he did not learn to fly till some five or six years later, and therefore, as *The Daily Mail* is notoriously accurate in all aviation matters, we must believe that the lad Alan playing upon the shore at Bristol was carried under the bridge by some predatory eagle (such as troubled his after years so much) and safely set down as inedible on the other side.

Thus partly due to the curious flavour of "Little Lord Fauntleroy" suitings, and partly owing to his charming manner with eagles, Sir Alan lived to astonish the world and to be the proud possessor of an inalienable right to wear the golden spurs of knighthood with plus-fours whenever it pleases him so to do.

After a fortnight's inactivity owing to the pilots' strike, which has now been amicably settled, the K.L.M. services began again on Monday. The first pilot to arrive at Croydon was Mr. Duimelaar, who was warmly welcomed by numerous friends. During the strike all sorts of wild rumours were current, one of which was that Mr. van Dyk had accepted a job as test pilot to the Rumanian Air Traffic Co. Actually, he was merely delivering a machine to Rumania, probably on behalf of the Fokker Works,—so rumour, as usual, proved a lying jade.

Mr. van Dyk and Mr. Wiersma are to reopen the Amsterdam-Batavia mail flights of the K.L.M. on Sept. 25 according to schedule, and another machine from Holland will follow on Oct. 2, after which the journeys will be made regularly every fortnight. From the Netherlands Indies the first return flight will start on Oct. 17, after which departures will take place every 14 days from that side also.

Mr. Jack Matthews is expected back on the aerodrome very shortly, where everybody is looking forward to seeing him again and giving him a right hearty welcome.

A Swiss professor, who proposes to make a 10-mile vertical flight in an aluminium egg attached to a balloon, has crammed the egg with complicated scientific instruments, which one only trusts the professor himself understands. They are apparently designed to prove or disprove Einstein's well-known theory that at a height of 10 miles Friday afternoons only happen every alternate Sunday morning, owing to the rarified atmosphere in those parts. With true professorial absent-mindedness the scientist seems to have forgotten to make the necessary calculations to ascertain how much gas was needed to lift his outfit from the ground, which therefore stayed put when he attempted to take off at Augsburg, Bavaria, last Sunday. It is a pity our Mr. Hewlett was not there to add a drop of Ethyl to the reluctant gas.

According to *The Daily Mail*, the professor, his assistant and the assorted instruments so filled the aluminium egg that food supplies had to be carried in specially constructed hats. These, it is supposed, must outwardly resemble very tall tall hats inside which successive compartments (from the brow up) contain glowing charcoal, soup, meat, two vegs., sweet, toasted cheese and coffee. Alcoholic beverages are not mentioned, but it is thought that an ingenious method of carrying these has been invented, whereby all hands swallow two or three days' supply before setting out.

We understand that an extremely pleasant informal gathering was held at Rule's on Thursday last, when the Guild of Air Pilots and Navigators dined Wing Cdr. Kingsford-Smith and Mr. Stannage, his wireless operator. Air Vice-Marshal Sir Sefton Brancker was in the Chair, and among those present were Col. The Master of Sempill, Mr. Charles Barnard, and Sq. Ldr. Johnson. Many aviation notabilities were also present.

That representatives of the newest form of transport should make "Ancient Rule's," with its atmosphere of bygone generations, their headquarters is a quaint but a pleasing thing withal. Rule's should take time by the forelock and acquire a set of caricatures of aviation pioneers and present-day celebrities, which in due course will be as interesting to future generations as the cartoons of Spy are to-day.—SPRY.

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Handley Page Ltd.

AUTOMATIC SLOTS

"A LUCKY ESCAPE."

"If the machine had had slots it certainly would not have spun and he might have sat it down flat."

"The Aeroplane,"
10th September, 1930.

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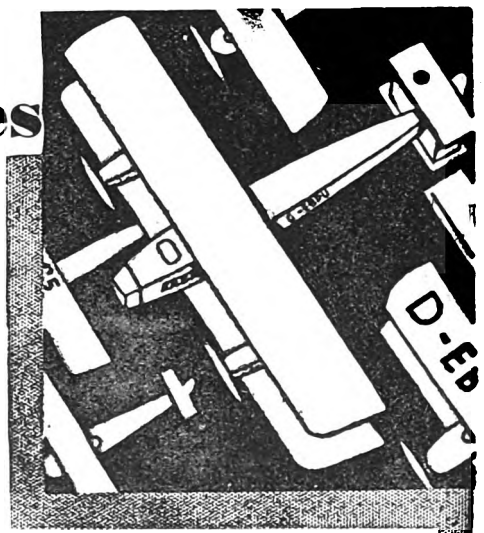

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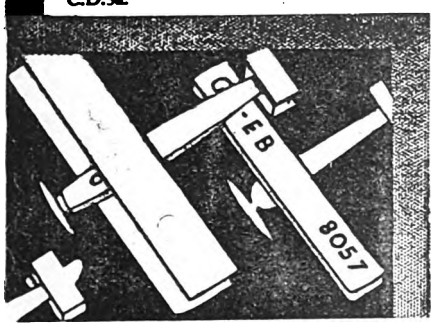

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'Celastoid' The leading material for Aircraft Fittings and fancy Articles. Strong. Safe. Windows, Rain-spot and Waterproof, do not turn yellow.
Supplied in all colours—Opaque or Transparent.

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KBB Compasses *for* Aeroplanes

Non - Periodic

i.e. If the Magnet - System be deflected to any angle and be then released it overswings the position of equilibrium once only by a few degrees and then promptly returns to its position of rest.

Extremely **Quick & Dead-Beat** in Action

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Approved by Air Ministry for Civil Aviation

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Imperial House, 11-15, Air Street, Regent Street, London, W.1.

A Happy Landing !

MISS WINIFRED SPOONER

Made her first Parachute Jump at Letchworth—September 10—using an

IRVIN AIR CHUTE

Miss Winifred Spooner is one of the many Private Owners who always wear an Irvin Air Chute.

IRVING AIR CHUTE OF GT. BRITAIN, LTD.,
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TRADE NEWS

THE FIRST BRAZILIAN CATERPILLAR.

Through the friendly co-operation of Mr. Dan. E. Tobin, travelling representative of the Curtiss-Wright Export Corporation, now in South America, the Irving Air Chute Company, of Buffalo, has been advised that Brazil is now one of the countries which is represented in the Caterpillar Club.

Lieut. Amarilio Vieira Cortez.

Mr. Tobin has presented documentary evidence to the effect that on May 21, 1930, the life of Lieut. Amarilio Vieira Cortez, of the Brazilian Navy, was saved in an emergency jump near the Naval Aviation Field at Rio de Janeiro.

Lieut. Cortez was stunting an American-made ship which had seen considerable service. At about 3,000 feet, while about half up to the top of a loop, he saw and felt the right wings leave the ship. The officer immediately cleared and landed by parachute.

With him had been Sergt. Ary Gonsaga de Souza, whom the officer believed cleared the ship at the same time. On landing he was amazed to find Sergt. Souza had never left the ship. Lieut. Cortez later learned Souza had a habit of keeping his head inside the cockpit while stunting was going on. He probably never knew what happened.

ART, AIRCRAFT AND ADVERTISING.

The many readers of THE AEROPLANE who have expressed their appreciation of certain of its coloured covers, especially those carrying the Blackburn Lincock on June 18 and the mysterious Intercepter Fighter last week, as well as the coloured photographic covers of the Puss Moth on July 30, the Avro 5 on Aug. 27, and the seascape cover of the Armstrong Whitworth and Armstrong Siddeley Supplement issue of June 25, will be interested to learn that they are all the work of Mr. C. Peckham, of 4, New Compton Street, Charing Cross Road, W.C.2, who is a specialist in illustrating and advertising aircraft.

Mr. Peckham is one of those rare individuals who is a business man as well as an artist. Not only can he produce a poster, or an advertisement, or a folder that is in itself a work of art, but he can produce it on a promised date. In addition he has plenty of original ideas and can work out a complete scheme of advertising to include illustrations, copy, printing, and all the other details which harass the business man who appreciates the value of advertising but does not understand the technique of it.

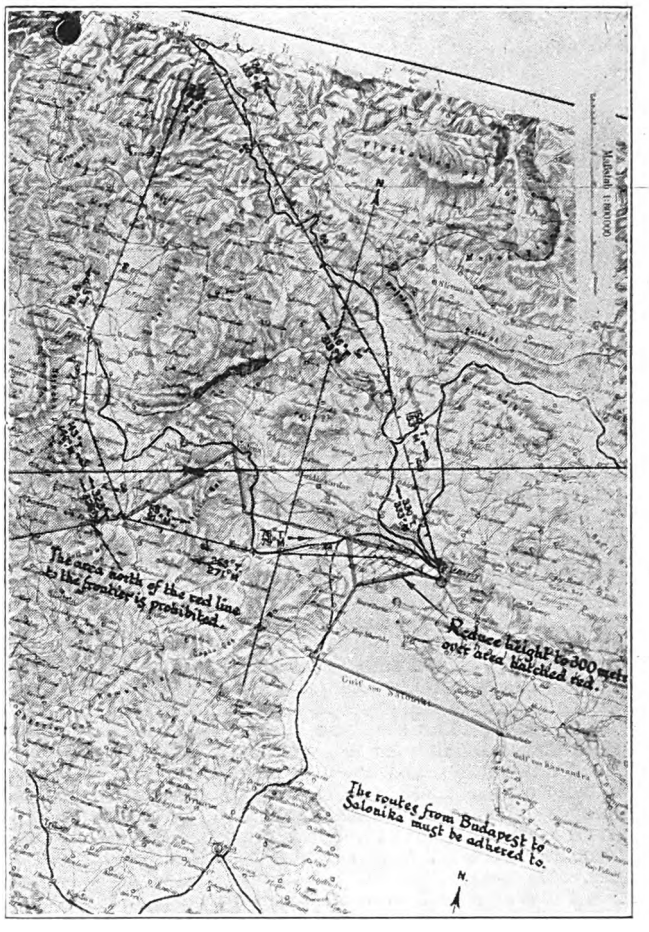
Those readers of THE AEROPLANE who understand these things cannot fail to have been impressed with the artistic merit and technical accuracy of the picture of the Lincock in particular and many will be glad to know that his art and organisation are at the disposal of the Aircraft Industry.

CIRRUS SERVICE AT ABBEVILLE.

This paper has already notified its readers that Mr. George Nash, who is the recognised representative of Imperial Airways and Air Union at Abbeville, runs a Service Station available to private owners at the Abbeville Aerodrome. Readers may further like to know that Mr. Nash has held a service agency for Cirrus and Hermes engines for a long time and has been able to be of some considerable help to pilots with those engines at one time or another.

AN AIR UNION ALTERATION.

The Air Union night service between Paris and London has been temporarily suspended. In its place a special service has been inaugurated which leaves Le Bourget at dawn and arrives at Croydon three hours later. This service will operate daily, with the exception of Mondays.



HOW IT'S DONE.—Two of the maps specially prepared for Imperial Airways by Raynoil Maps Ltd. for use on the New Route. The photograph shows two sheets placed edge to edge and illustrates the difficult route between Skoplie and Salonika. The maps have been supplied in sets which are arranged in loose-leaf books.

A LODGICAL CONCLUSION.

Lodge Plug Ltd., of Rugby, have pleasure in announcing that the Rolls-Royce Condor engines of the Airship R.100, on the record Atlantic flight just accomplished, were equipped with Lodge plugs.

Evidently Lodge plugs suit Rolls-Royce engines for the Rolls-Royce "R" engine in the Supermarine S.5, which won the Schneider Trophy and holds the World's Record for speed (the fastest man-made substance, with the exception of projectiles) was also fitted with Lodge plugs.

MODERNIST ADVERTISING.

A local train had mysteriously stopped just outside a station and the lights had gone out. After a few moments of nervous tension, it suddenly started, as suddenly reversed, then shot forward again. At this, came a voice out of the silence of the crowded carriage: "That's Shell—that was!"

Thus does clever and striking advertising fix itself even in the English mind.

THE GENET AVIAN IN CANADA.

An Avian with Genet-Major engine won the open handicap private relay race in a recent flying meeting at Montreal, Canada. The Canadian version of the Avian is built under licence by the Ottawa Car Company Ltd., and is an all-metal product. The Armstrong Siddeley Genet-Major engines, which are fitted as standard, are supplied by the Canadian branch of Armstrong Siddeley Motors Ltd.

AGAINST SLACKNESS.

The following Notice to Aircraft Owners and Ground Engineers has been issued by the Air Ministry:—

The attention of aircraft owners, ground engineers and all concerned is drawn to the fact that slackness in the operating mechanism of flying controls may, under certain circumstances, give rise to flutter either of the wing-aileron system or of the tail unit.

This reads like an official urge to fit Arens Controls.

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The

SPARTAN ARROW

A Distinctive Light Aircraft

The Spartan "Arrow" is a robust light aircraft of good performance and easy flying qualities. It possesses a steep angle of climb, a short landing run, and exceptional control down to the stall which, with normal loading, occurs at 35 m.p.h. The cock-pits are planned to give a maximum of comfort and protection from draught, together with a good range of view. The Gipsy II Cirrus-Hermes, Gipsy I or Cirrus Mark III engine may be fitted. A high degree of interchangeability is a feature of the construction. The all-up weight in the normal category is 1,750 lb., and in the aerobatic category 1,560 lb. The useful load is approximately 600 lb. in the former and 400 lb. in the latter, varying slightly according to the type of engine fitted.

Spartan Aircraft construct also a three-seater light aeroplane. The high aerobatic certificate of airworthiness of 1680 lb. and the special high lift section wings ensure good performance with a Cirrus-Hermes or Gipsy II engine, even when carrying two heavy passengers. The passengers' cock-pit is comfortable and well protected. A descriptive leaflet will be sent on request.

SPARTAN AIRCRAFT
LIMITED,
WESTON, SOUTHAMPTON

Aeromarine

AT HESTON

Mr. Nigel Norman

Messrs. Nigel Norman and Alan Muntz were owners of aircraft in 1926. The possibilities of private flying and the desire to strike out on their own led them to attempt to make an aerodrome which should be the best in England for civil aircraft. After careful exploration they fixed on some cabbage fields near the Great West Road as the best possible site. Heston Air Park took shape. Novel ideas abounded—the first all-concrete hangar in England; wireless communication with school aircraft; ideal accommodation for aeroplanes; the most up-to-date workshops; Customs facilities; aeroplane showrooms. Heston became the business and social centre of private flying. Progress continues steadily, because Heston supplies only the best. Naturally Duckham's Adcol Aero Oil N.P.5 is supplied at Heston. Adcol N.P.5 surpasses the requirements of the Air Ministry's Specification D.T.D.109.P.4—the most exacting aero oil test in the world.

Airwork Ltd. for all aviation amenities, and Duckham's Adcol for better lubrication.

Mr. Alan Muntz

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PRATT'S NEW AVIAN.—Mr. Rodwell Banks, of the Technical Sales Staff of the Anglo-American Oil Company, stepping out of the firm's new aeroplane, a Sports Avian with Hermes engine, at the sunken petrol service station at Croydon after a successful maiden flight from Manchester. The pilot is Flt. Lt. T. Rose. The machine has a cruising speed of 107 miles an hour and a top speed of 125. White wings and red fuselage is the striking colour scheme, a change from the green wings and chrome fuselage which have made the company's older machines familiar at flying gatherings.

special wing radiators developed by those firms for the machines which they built for the Schneider Trophy Contest. The figures which have been published are very interesting and show that the Supermarine Wing Radiator which in no way increases the drag of the wing, dissipates 4.5 per cent. more heat per unit of cooling area than the best high-speed type of honeycomb radiator in which the cooling area is 100 times the frontal area.

Thus the double-skin type of radiator developed by Supermarine Aircraft Works Ltd. not only offers no increase of drag but it is actually more efficient in the amount of cooling effected for a given area. Its chief snags for everyday use are increased weight and difficulty of maintenance.

A WIDGEON AT WORK AT WICK.

Mr. B. J. O'C. Hanstock and his Widgeon (Gipsy I), *Miss Ethyl*, of the Anglo-American Oil Company Ltd., have again been mixing business with pleasure and more business with both.

He states that he had to go up to Aberdeen "on a job of work" and then had to fly the local manager on up to Wick, which is 95 miles farther into the North,—by Widgeon. He also explains that the journey takes 12 hours by train as compared with one hour and twelve minutes in the Widgeon "all over fairly good country except the bit of water from Banff to Wick."

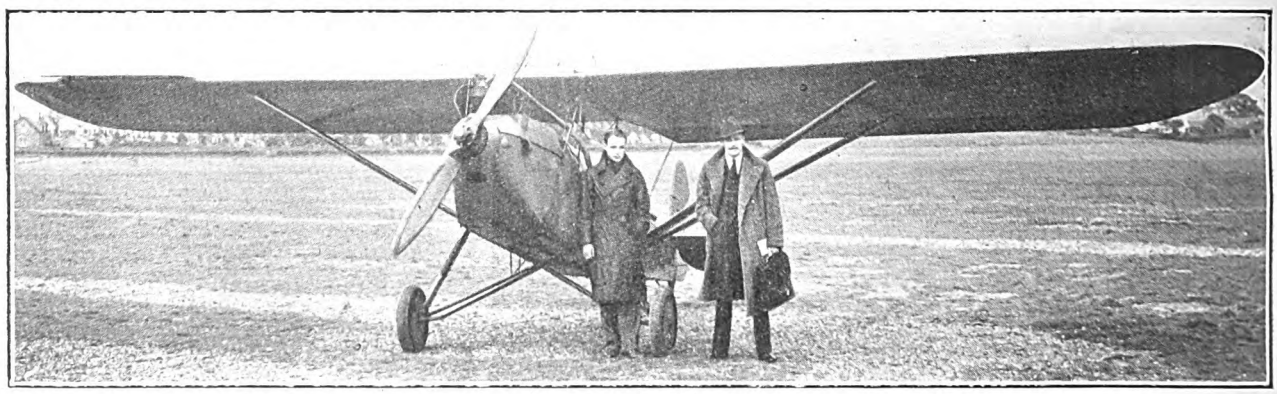
Until the editorial atlas was brought into play the point was not quite so clear as it afterwards became. Wick is less than 15 miles from John o' Groats, so it really is fairly well up towards the top end of our Island. Furthermore the "bit of water" is a mere 60 per cent. of the Aberdeen-Wick journey and consists of Moray Firth which is 55 miles wide at that crossing.

Wick was engaged on its Annual Gala Day, and Mr. Hanstock treated the inhabitants to a request demonstration on his Widgeon. He says it was not difficult as the people up there are not very well acquainted with aeroplanes. He used a field at Stirkoke for his aerodrome and describes it as excellent. He also gave several people their baptism of the air, among whom was Lady Horne, who is 70 years of age.

Incidentally Mr. Hanstock did not leave Wick until midday. He landed for lunch at Aberdeen, refuelled at Newcastle, diverted slightly from his course to call at Northampton, and got to London at 20.00 hours. The flying time was six hours for a trip which represents most of the North-South dimension of the British Isles. The linear distance is about 500 miles, and Mr. Hanstock does not appear to waste much time in detours.

Dr. A. Dingwall-Kennedy, late R.A.F. Middle East, and now of Wick, Sutherlandshire, writes:—

> We had quite a little encouragement in the way of airmindedness lately, what with the Anglo-American Oil Company's 'bus, *Miss Ethyl*, piloted by Captain "Jimmie" (*vide* the local Press) Hanstock, who flew like any bird. What impressed me most was his throttling down to zero and practically gliding along level. It was simply a gorgeous sight, and as *Miss Ethyl* hovered overhead I saw her slotted wings and as it was the first time I had ever seen them in action I was tremendously impressed by their effect on the whole monoplane. They gave an appearance of safety and stability.
>
> Although he did not stunt very much the crowds were thoroughly satisfied with what they saw and the steep dives, vertical turns and occasional loops gave them all the thrills they wanted. That too gave me a lesson in its way. I mean that knowing something about it I found it difficult to judge how much or how little would satisfy a crowd who knew very little about flying. I was surprised to find afterwards what a great deal of genuine pleasure they derived from just watching the aeroplane going through a series of rapid movements quite remote from what one would regard as stunting.



COMMERCIAL AVIATION.—Mr. Henry Tegner (right) of the Anglo-American Oil Co. Ltd. and Mr. Hanstock who piloted him over the whole of Mr. Tegner's district in four days as reported in "The Aeroplane" for July 30.

Fit "TripleX" Regd -and be safe!
TRADE TRIPLEX PLATE MARK REGISTERED
TRADE TRIPLEX SHEET MARK REGISTERED

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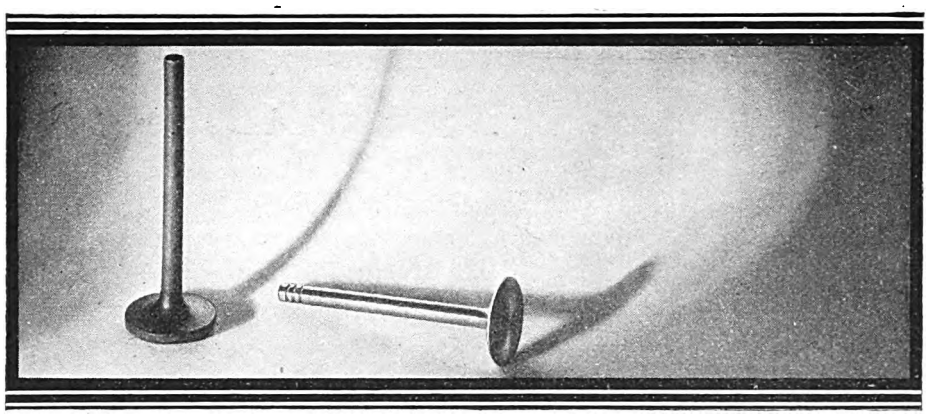
Illustration shows typical examples of valve forgings in their rough-forged and finished states.



THE UNITED STEEL COMPANIES LTD

DANIEL DONCASTER & SONS LTD.

Associated with The United Steel Companies Limited

SHEFFIELD

T.T. WINNERS USED VALVES FROM DONCASTERS' FORGINGS . . . . .

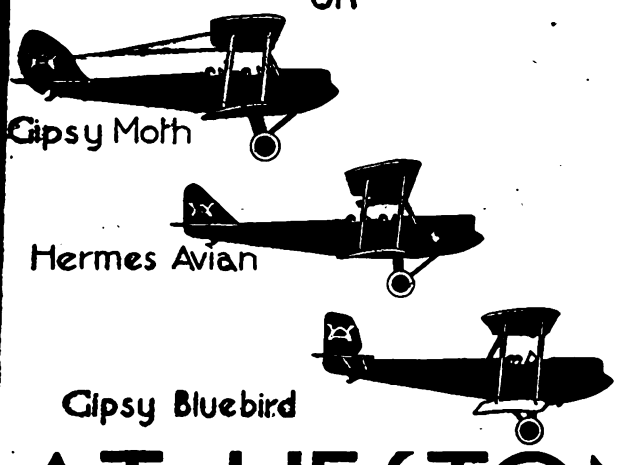
In the Isle of Man T.T. Races this year, Rudge-Whitworth machines gained 1st, 2nd and 3rd places in the Junior race and 1st and 2nd places in the Senior. All the valves, both inlet and exhaust, on these machines were forged by Doncasters.

Successful machines in these races showed the highest degree of reliability in every part. The valves of the T.T. Rudges were made by Doncasters because the makers knew that only the best was good enough for such machines.

Drop Forgings of all descriptions, particularly from alloy steels, are a speciality of Daniel Doncaster & Sons Ltd.

ΦD8

LEARN on



AT HESTON

CAPT. V. H. BAKER M.C., A.F.C., CHIEF INSTRUCTOR.

AIRWORK LIMITED

HESTON AIR PARK · HOUNSLOW · MIDDLESEX.

HAYES 410.

AEROPLANE COMPONENTS

You will find that our components are fitted to nearly all the first-class machines. The reason is: Our Customers know that behind every product there is the necessary knowledge and experience, and that the parts we make can be relied upon. See our exhibits on Stand No. 182. Olympia Motor Show.

RUBERY, OWEN & Co.

REGISTERED TRADE MARK

DARLASTON, SOUTH STAFFS

Tel.: DARLASTON 120

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THE BOOM IN AIRCRAFT.

During the past week the De Havilland Aircraft Co. Ltd. has booked orders to the value of £70,000 for the supply of Gipsy Moths for training and general service duties.

Eighty-three Moths (Gipsy I engines) have been ordered by the R.A.F. for training and communication duties.

Eight Moths (Gipsy I engines), including one seaplane, have been bought by the New Zealand Ministry of Defence.

Ten Moths (Gipsy II engines) have been bought by the Chinese Government for military training. Four of this order are to be equipped with quickly-interchangeable float undercarriages, so that they can be used for seaplane training on the Yang-tse-kiang at Shanghai.

All the above aircraft are of the metal-fuselage type.

COMFORT AND CUSHIONS.

The proper number and size of cushions to produce the required mixture of comfort and visibility in an aeroplane is an unknown quantity, but nobody ever finds the existing padding exactly to their taste. Spare cushions of assorted thicknesses are a necessity for proper instruction in school and club, and the private owner needs them almost as much.

Oliver White Ltd., of 9, Wyndham Place, W.1., not only make up cushions of any size and consistency but also ornament the exterior in the best aeronautical taste and tradition to the customer's order. The cushions are of suede cloth with waterproof backing, are stuffed with kapok and embroidered with any design, monogram, aeroplane or colours that the buyer may desire. Besides being waterproof they are washable. Their usefulness in the aeroplane is only equalled by the convenience they give in a car, where they adjust any seat to any driver at a moment's notice.

This firm also specialises in curtains, floormats and cushions for cabin aeroplanes, which they make up in sets to order. Several members of the staff are ex-R.A.F., and know what is required of aeroplane furniture.

TRY IT IN PERSON.

A material which should be tried by all who are concerned with engines, either car or aero, is Weston's soluble Grinding Paste. This paste is widely used for grinding valves and is very popular with the Royal Australian Air Force and the R.A.F. in India. Private owners, air line operators, and others who have to overhaul aero-engines and are unfamiliar with this paste, should follow the lead of Imperial Airways, who use it a lot.

Those who would like to try it should write to Mr. Stott, of Weston and Co. (London) Ltd., 8, London Street, Fenchurch Street, E.C.3, and mention The Aeroplane, which will secure for *bona fide* inquirers a large free sample.

How to reduce noise is a problem that is beginning to attract much interest, and Weston and Co. are interested in this also. Various researches are being made by official bodies, and individual manufacturers are making tests of their own with a variety of materials. One of these is a substance known as "Cork Feathers," which are very thin slices, or rather chips, of cork. This material, if attempts now in progress to fireproof it become successful, may very well become greatly in demand. Samples may be had from the same address.

A REAL CONVENIENCE FOR VISITORS.

Henly's Ltd., who are agents for aircraft as well as motor cars, have instituted at Heston a service which is bound to be a boon to visiting pilots. Nothing is quite so discouraging to the air-traveller as to arrive at an aerodrome and find himself more or less marooned, or dependent for transport on services which may be slow and awkward, and are on occasion ruinously dear. Private owners fly to save time, and when they arrive they often like to fulfil their plans without waste of that commodity.

By means of Henly's "Hire and Drive Yourself" service, a pilot and his party may get a Studebaker six-cylinder saloon and drive where they will at rates ranging from 11d. per mile for the first 50 miles, less for longer distances, and more for larger cars. All the cars are new and are used exclusively on this service.

If the car is not required for returning to the aerodrome at once it may be left at any Henly depot, and another may be picked up later for getting back to the field if necessary.

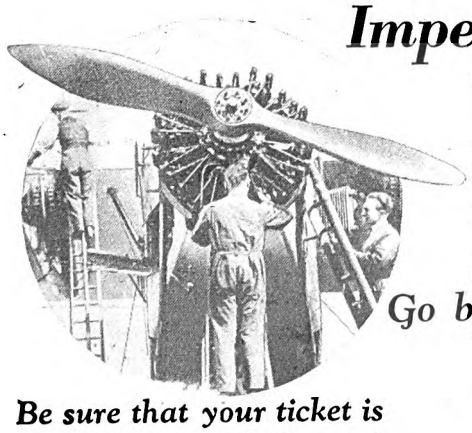
Should this service meet with popular approval, it will be extended to other aerodromes besides Heston.

A TIME-SAVING VICE.

The vice to which the heading refers is one of the steel-jawed ones and not the lilied and langourous temptation of Swinburne's imagining. Every fitter, and every executive who has been a fitter, is aware of the time that is wasted by the frequent clampings and unclampings that have to be made with the conventional vice. One does so much work along one side or edge, then the job has to be taken out, turned round and re-set into position. With a heavy job this business takes time.

A vice which removes this difficulty and has as well other attractive features is the Swindens Patent Revolving Head Vice. Although this vice is quite new, it has gone

Imperial Airways Ensures Reliability



THE latest statistics shew that Imperial Airways Expresses are maintaining an all-the-year-round dependability of well over 90%. One of the secrets of this reliability is the system of overhaul and maintenance. Before each flight the great 'Silver Wing' air-liners are carefully examined and overhauled by Imperial Airways engineers. You are as sure of reaching your destination on time in an Imperial Airways 'plane as if you travelled by Pullman, and much quicker.

Go by

IMPERIAL AIRWAYS

Be sure that your ticket is marked 'Imperial Airways'

Bookings and information from any Travel Agency or direct from:—
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C.F.H.

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The Superlative Oil

Silvertown

Speedolene

MINERAL OIL (P.4.—D.T.D. 109)

EXCEEDS the AIR MINISTRY'S exacting requirements to a GREATER DEGREE than any other branded oil.

There is no better aero-engine oil

IT IS THE BEST

Use ONE GRADE *throughout the year for all climates, latitudes and altitudes.*

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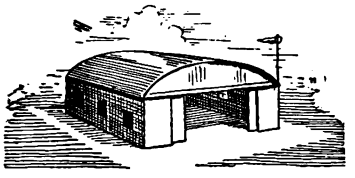

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ahead rapidly and has been ordered by the Admiralty, War Office and Royal Air Force. These Vices are being used in both stationary and mobile service workshops. They have also been ordered by the General Post Office, India Stores Department and Crown Agents for the Colonies.

The first unusual feature of the vice is the provision of two pairs of jaws. One pair is conventional with straight and serrated sides. The other is curved and grooved to hold, without slipping, pipes or any kind of round or irregular surface.

The complete head of the vice with these two jaws can be rotated round a horizontal axis. The head can be swung into any desired angle and there locked with a single movement of a lever. With this arrangement one clamps the job into place and swings it around as is necessary. But the job does not have to be taken out and turned round.

As is to be expected of the enterprising manufacturers of such a useful tool the idea has been extended, one can get a Swindens Patent Revolving Head Vice with a further gadget so that it can be turned round a vertical axis. Further, the vice can be had as a machine-vice with graduated scales on the horizontal and vertical scales. This fitment is extremely useful and does away in many cases with the need for expensive jigs.

These vices are made of toughened steel with a tensile strength of from 30 to 40 tons per square inch. They are guaranteed unbreakable. For further information people should write to Swindens Patents Ltd., 14, Queen Victoria Street, London, E.C.4, and mention The Aeroplane.

GETTING ON WITH IT.

Arens Controls Ltd., of which the energetic Managing Director is Mr. L. H. Freeman, know that if you want to cover the biggest possible distance in the shortest possible time you must travel by air,—so they do.

On Sept. 1 G-AAXW, which is the much-travelled Puss-Moth in which Mr. C. D. Barnard has been flying so vigorously lately, arrived in Rome with Sir Sefton Brancker on board. This Arens-controlled machine (in all senses) had been about to go on a tour of Mittel-Europa with Mr. Freeman, and Mr. Piercey as pilot. Sir Sefton Brancker, who wanted to go to Rome and see the end of the Giro Aereo, took the opportunity and was conveyed luxuriously by Puss-Moth to Rome.

After his arrival there Mr. Freeman set out on business calls to his clients in Czechoslovakia and Germany. The number of widely separated places he was able to visit in the short time at his disposal and the small cost of fuel and oil are eloquent propaganda for the use of light aircraft for travellers who have to visit a widely-spaced circle of clients.

On Sept. 2 the Puss-Moth visited Friedrichshafen and Zurich. On the 3rd calls were made at Augsburg and Stuttgart. On Sept. 5 the travellers went to Prague and reached Berlin on the 5th, after visiting Dessau and Dresden.

After a few days in Berlin the Puss-Moth left on Sept. 9 for Amsterdam. Hannover was reached in two hours and Amsterdam one hour later, which is good going. On Sept. 10 the travellers were back in London, after a brief journey of two and a quarter hours from Amsterdam.

The whole trip was satisfactory. Firstly the Puss-Moth was the fastest and most comfortable method of travelling. Secondly, the machine was a real demonstration model in that when a customer said "very nice, but . . . " he could be taken up and shown how excellently Arens Controls do work. So one is not surprised to hear that all the big German firms are interested, and that a large number of machines are having engines and/or flying controls Arenautically arranged.

NEW COMPANIES.

Reading Aero Club Limited.—Private company. Registered Sept. 13. Capital, £100 in £1 shares. Objects: To promote, assist and encourage aerial navigation in all its forms, and the study of aeronautics, etc. The directors are: C. O. Powis; E. J. Phillips; D. E. Swan,; E. E. Stammers, Coventry House, 3, South Place, E.C.2. Solicitors: W. R. J. Hickman Randall and Stammers, Coventry House, 3, South Place, E.C. Registered office: Reading Aerodrome, Woodley, Berks.

G. and H. Aviations Ltd.—Private company. Registered Sept. 8. Capital, £100 in £1 shares. Objects: To establish, maintain and work lines of aerial conveyances, etc. The subscribers (each with one share) are: F. Greenwood, 119, Mayfield Avenue, North Finchley, N.12, ventilating engineer. J. W. Halliwell, 8, Crescent Road, New Barnet, ventilating engineer. H. Whitehead, 80, Huntingdon Road, East Finchley, N.2, engineer's clerk. Solicitors: Milnes and Milnes, 7, New Square, W.C.2.

PERSONAL NOTICES.

Death.

BALL.—On Sept. 9, killed flying while on duty at Digby, Peter Strickland Ball, son of Commander W. H. S. Ball, Weymouth.

Mr. Ball entered the R.A.F. with a short-service commission in July 1930 and was posted to No. 2 Flying Training School, Digby.

Marriages.

SLATTER—DAVIES.—On Sept. 10, at Harlow, Sq. Ldr. Leonard Horatio Slatter, son of the late Mr. Alfred I. Slatter, of Durban, South Africa, to Cecil Nancy Ashwin, eldest daughter of Lieut.-Col. C. M. Davies, The Brewery House, Harlow, Essex.

THOMAS—SCOTT.—On Sept. 10, Ernest Mortimer Thomas, late R.A.F., son of the late Ernest Mortimer Thomas and Madame Denegri, of Shanghai, China, to Eileen May Scott, daughter of the late Joseph Fountain, of Birthwaite Hall, Darton, Yorks, and Mrs. Fountain, of London.

Forthcoming Marriages.

PAUL—APPLETON.—The engagement is announced between G. J. Christopher Paul, R.A.F., only son of Mr. E. W. Paul, M.R.C.S., and Mrs. Paul, Wellington Circus, Nottingham, and Mary Georgina (Molly) Appleton, only daughter of Mr. and Mrs. F. C. Appleton, The Hill House, Bodenham, Herefordshire.

FRESSANGES—BROADWAY.—The marriage arranged between Flt. Lt. F. J. Fressanges, R.A.F., elder son of Capt. and Mrs. Fressanges, and Joyce, younger daughter of the Hon. Sir Alan and Lady Broadway, of Lahore, India, will take place in Lahore in November.

Births.

BAKER.—On Sept. 12, at Queen Mary's Home, Hampstead, to Hilary (Bonham-Carter), wife of Flt. Lt. John W. Baker, R.A.F.—a daughter (Joan).

BARLOW.—On Sept. 11, to Barbara Millicent Francis, wife of Flt. Lt. E. C. Barlow, R.A.F.—a daughter.

BENNETT-BAGGS.—On Sept. 12, at Brook House, Felixstowe, to Peggy (*née* Rowley), wife of Sq. Ldr. J. L. N. Bennett-Baggs, R.A.F.O.—a daughter.

FLETCHER.—On Sept. 11, at Bowbutts, Kinghorn, Fife, to Margaret Oliphant, widow of Flt. Lt. Nigel Henry Neville (Jack) Fletcher, R.A.F.—a son.

INSALL.—On Sept. 7, at Imber, Sevington, Ashford, Kent (the residence of her father-in-law), to Anne, wife of A. J. Insall (late R.F.C. and R.A.F.)—a third son.

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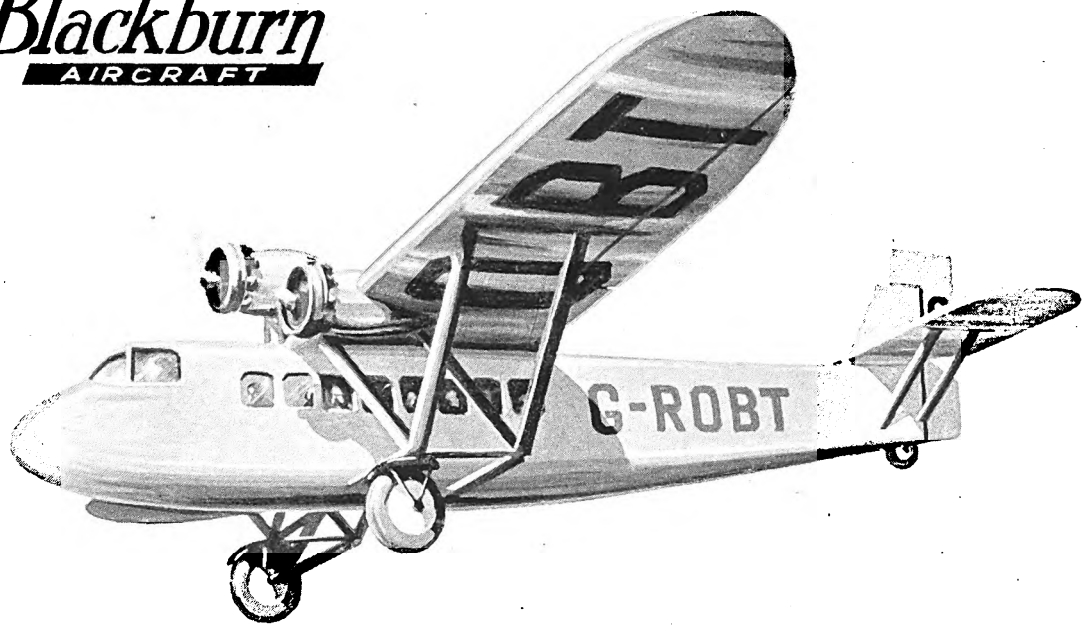

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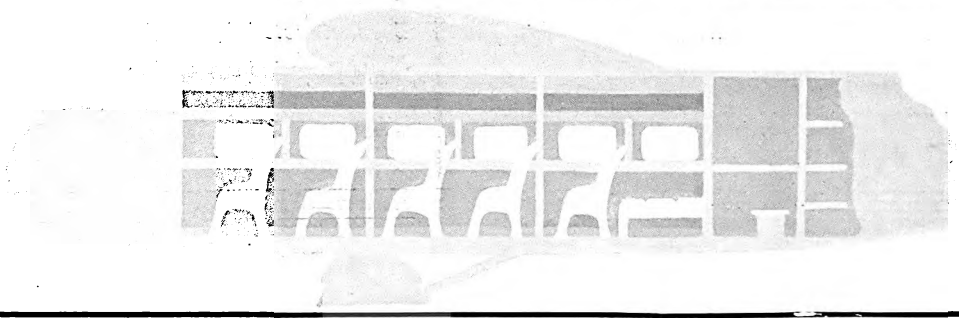

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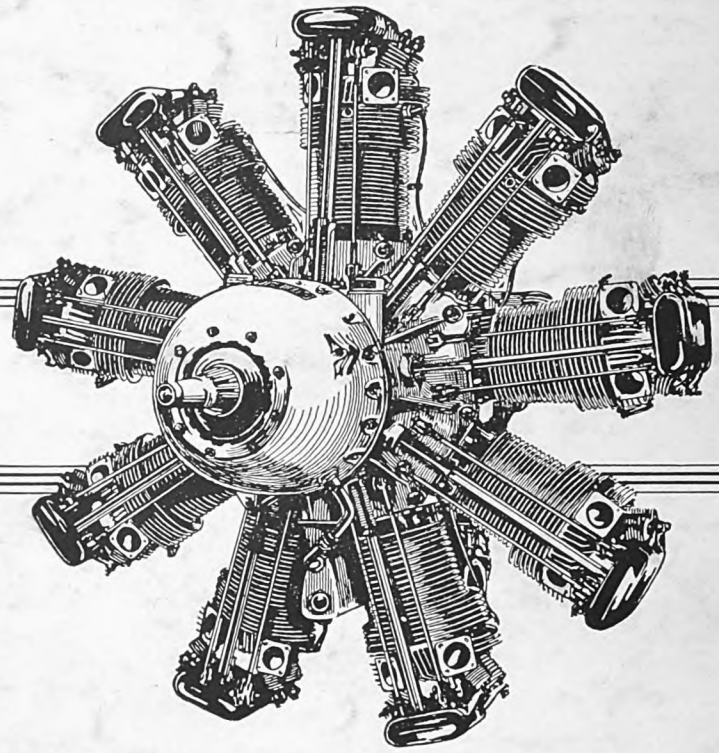

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THE AEROPLANE

6d.
Weekly.

INCORPORATING AERONAUTICAL ENGINEERING

Edited by
C.G.Grey

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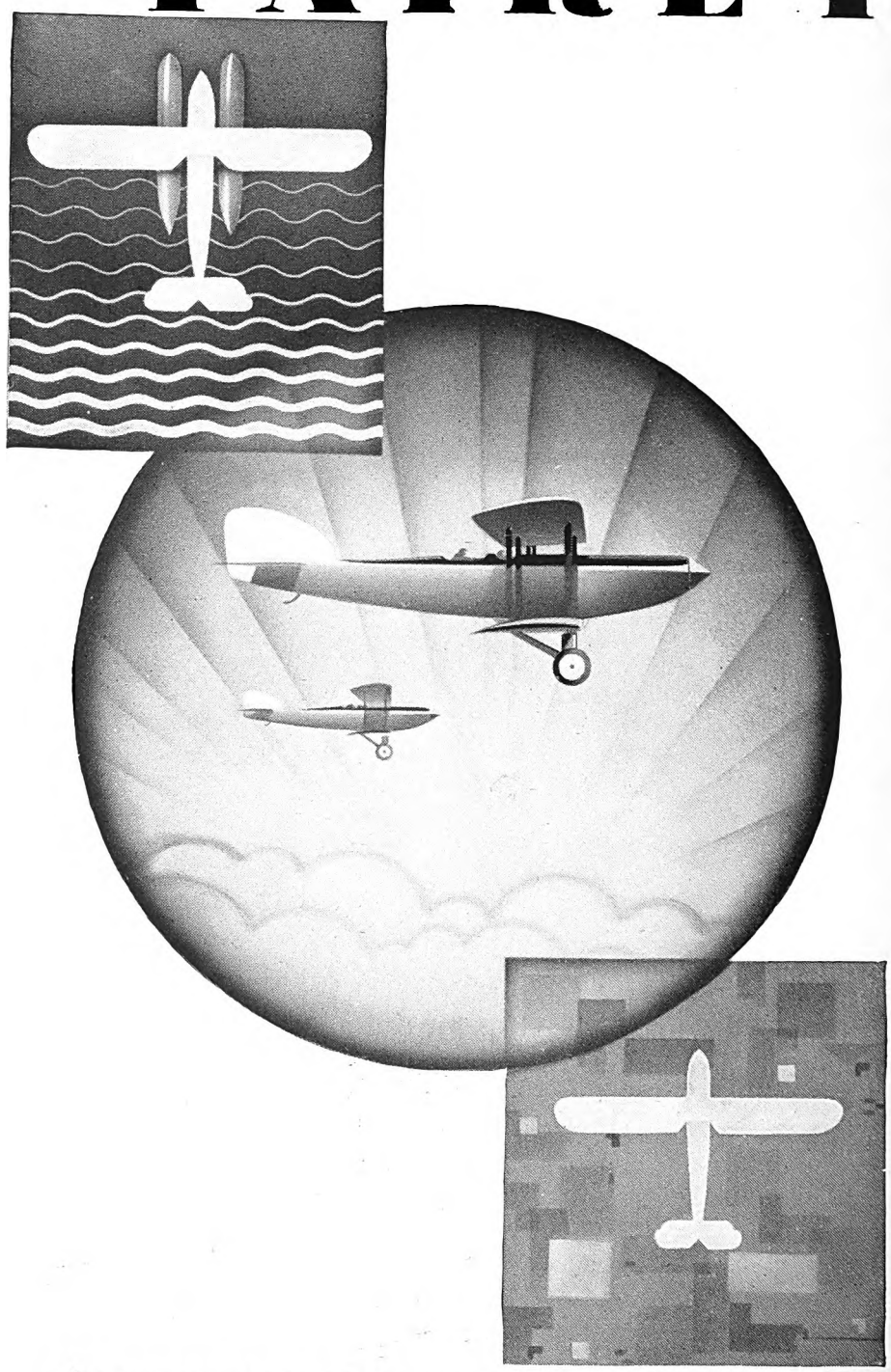
FAIREY



★HIGH PERFORMANCE SERVICE AIRCRAFT

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HAYES ✧ MIDDLESEX

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SEPT. 24, 1930.

THE AEROPLANE

Incorporating

Aeronautical Engineering

VOL. XXXIX No. 13.

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ON AIR MAILS, EXPORTS, AND UNEMPLOYMENT.

There is only one thing that is going to get rid of our unemployment troubles in this country. That is finding more work for the unemployed. And the only way to find work for the unemployed is to go out and get more business. And the only way to get more business is to make what other people want, and then go out and sell it to them.

Anything in the way of relief work is merely waste of money. Mr. Lloyd George's great scheme for spending millions of the taxpayers' money on roads would not in the end have decreased unemployment. It would merely have increased our taxation.

The money which is being spent on tearing down buildings in our great cities and building young palaces in their place for the offices of great business corporations does help the unemployed. But the benefit cannot be felt for many years to come, even in the best circumstances, and it does nothing whatever to enrich the country in the immediate present. And what we want is to enrich the country now.

These great office buildings can only pay interest on the capital expended on them if the work done in them brings business from abroad, and our enormous new roads can only pay for themselves if they carry goods for shipment abroad, or if they speed-up communication between seaports and manufacturing centres. In themselves the roads and the great office buildings are of no more permanent value to the country than are the Roman roads and the Roman fortresses which our antiquarians are digging up with such assiduity.

Getting Business.

The only way in which this country can grow richer and can find work for its unemployed population is by doing trade overseas. And trade overseas can only be got in three ways.

The first, and most important, is by making what people in our Dominions or in foreign countries want and selling it to them at a price which they can afford.

The second is by sending competent people out to sell the stuff which we make and the people overseas want; and by advertising our goods cleverly and strikingly,—which is where we are at our feeblest. Of all our "producers" our producers of advertisements know least about their jobs.

The third is not, perhaps, the most important fundamentally, but it is the most immediately important as a means of increasing our trade as quickly as possible. That is the acceleration of communication between our manufacturers and the buyers overseas. And the quickest way of accelerating communication is by developing our Air Mail system.

As Sir Samuel Hoare said in his address at Ashridge on Sept. 18,—an address which has been excellently reported in the daily Press—the British Post Office has shown itself to be the blackest reactionary in all matters concerned with the air. (See p. 725 of this issue.)

That is the business with which this paper is immediately concerned. When a business deal is in progress very much can be done by cable or radio to fix the deal. But the deal can only be made in its earlier stages either by personal communication, that is to say by calls on the possible customer, whether by competent commercial travellers or by heads of firms, or by voluminous correspondence backed by clever and convincing advertising.

In fact, correspondence and advertising is, in a way, more important to getting trade than is actual calling in person. If we decide that we are going to get business in a certain country, that country should be flooded with advertising and with personal letters to the individual business men in that country, first of all. When interest has been established in that way (which is a species of ground-bait) then the representatives of our various firms can go to a country where their firms' names are already known.

To send a man to a country as a perfect stranger, or even to send to a foreign country a man who knows the country if he is not backed up by circularising and advertising and personal correspondence, is foolish. Three-quarters of that man's time is wasted in telling possible customers all about the things that he wants to sell before he starts to talk business.

"WE ARE NOT HERE TO SELL A PARCEL OF BOILERS AND VATS, BUT THE POTENTIALITY OF GROWING RICH BEYOND THE DREAMS OF AVARICE."—*(Dr. Johnson's Address at the sale of Mrs. Traill's Brewery.)*

NUMBER TEN.—This shows the tenth Moth being delivered to the establishment of Capt. T. G. Mapplebeck (late R.F.C. and R.A.F.), the De Havilland agent in Belgrade, the capital of Yugoslavia. Capt. Mapplebeck claims that Yugoslavia in the last year has bought and paid for more British aeroplanes than any of the six surrounding countries,—Italy, Hungary, Rumania, Bulgaria, Greece and Albania.

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Educating Our Big Business Men.

Now speed in communication of this kind is everything. And the speediest way of getting correspondence and advertising matter to countries overseas is obviously by air mail. And that is a fact to which the attention of all the big business men in this country ought to be directed. It is a matter which our Society of British Aircraft Constructors ought to take up.

Actually, it is hardly a matter for an association of constructors. It should be rather the affair of an Aeronautical Chamber of Commerce, such as they have in the United States. But, as we do not happen to have such an organisation, there is nothing to prevent the S.B.A.C. from starting a Commercial Communication Section, now that they have established their Intelligence Department under Mr. Bowyer.

Our Industrial Council.

On Sept. 19 the daily papers were full of a scheme propounded by a group of big business men, with Sir William Morris, the famous motor manufacturer, as Chairman, for the setting up of a National Council of Industry. A meeting of Industrialists has been called by them for next Thursday, Sept. 25, and the result will be watched with interest.

The Interim Committee which has been formed includes the names of many men whose names are famous in British Industry, but the thing which strikes me most personally is that it does not include anyone who is famous for doing trade overseas, or even a famous Export Agent. If you study the names you will find that the bulk of the business represented in that list is done in the British Isles, or at any rate with the Governments of British Dominions.

Take Sir William Morris himself, in whom we are particularly interested because he has a direct interest in Aviation, —to wit, his two types of radial aero-engines, which are just doing their preliminary tests.

Morris Motors Ltd. certainly do a big export trade,—probably bigger than that of any other British motor firm. But it is nothing to what they might have done if they had concentrated on overseas trade and had built cars and commercial vehicles on American lines, and had more or less left the home market to look after itself.

Supposing that in 1923, or thereabouts, when the little Morris car had got a good hold on the English trade, Mr. Morris, as he then was, had used the profits he was making to turn out a Chinese copy of the best American commercial vehicle then on the market. He would have got 20% more for it in our Dominions, and in other countries, than the Americans got for their vehicle, simply because it was British. The usual objection against British cars (that spares cannot be got for them) could have been met by telling agents that it could be kept running on American spares till the proper parts arrived. And we should probably have got more than half the business that is now being done by America.

Morris Motors would have been richer than they are today, and they would have done far more to enrich this country, because all these profits would have come into England from other countries, whereas now most of the profit on Morris cars comes out of the pockets of one set of Englishmen, and goes into the pockets of another set.

If you take the whole list of this proposed Interim Committee, probably the member whose business does the biggest proportion of its turnover in export trade is Sir Ernest Petter, for Petter Oil Engines penetrate to the uttermost ends of the earth,—even to remote coffee plantations in the wilds of Central America,—and Sir Ernest also happens to be a moving spirit in the Westland Aircraft Works, who also are doing a goodly proportion of export trade. And one aeroplane sold abroad does more good to this country than ten sold in the country itself.

Sir Ernest is the only member of the Interim Committee who has practical experience of aircraft, and we must hope that he will do his utmost to prove to his fellow-members that their individual salvation, as well as the solution of the unemployment problem, depends to quite a considerable extent on developing air transport and on producing aircraft suitable for use in our Overseas Dominions, so that air transport may be still more quickly developed.

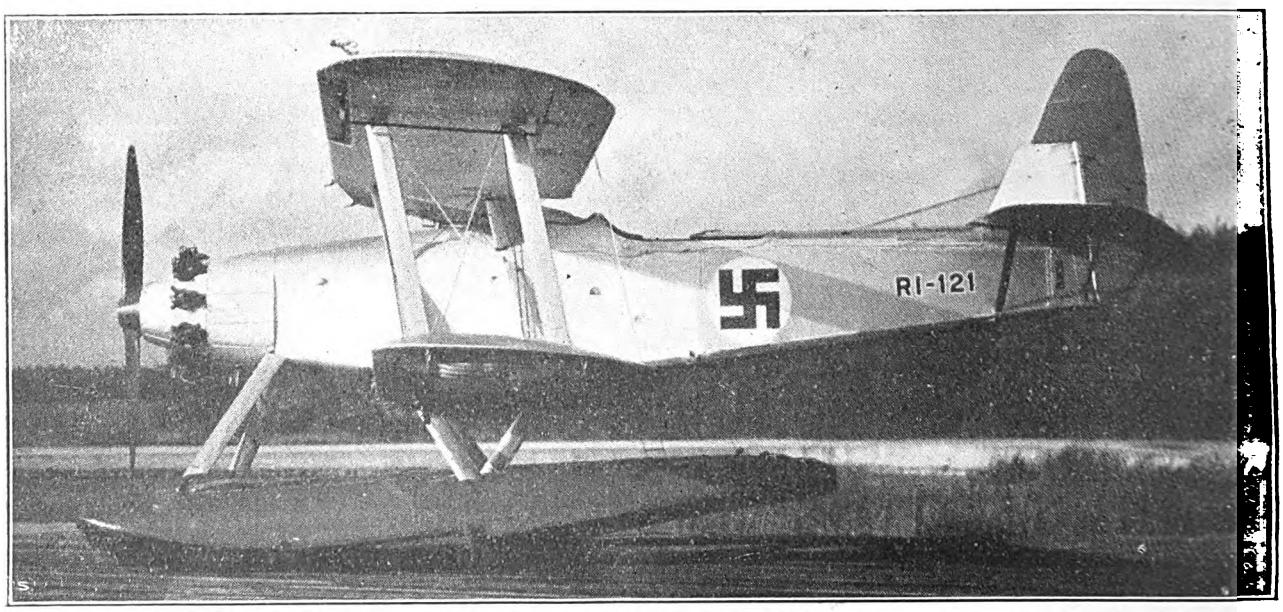
In this work Sir Ernest might find much help from the Commercial Communication Section of the S.B.A.C. if that body should decide to develop such a department. The first step should be to convince the big business people in this country that air communication can get business for them. And it should then set to work to get the support of those big business people in impressing on the Government the need for a much more rapid expansion of air mail work than is going on at the present moment.

Lost Opportunities.

Anybody who has taken an intelligent interest in the general newspapers and in aeroplanes during the past few weeks cannot fail to be struck by the opportunities we are losing by not developing our air mail communication properly. Unfortunately, very few people in the world do follow the newspapers intelligently.

After he has read about the latest defeat of a British heavy-weight boxer, and the failure of Sir Thomas Lipton to win *The America's* Cup, at a cost which he is credited with estimating at £200,000, and about the alleged, and now refuted, refusal of Lloyd's to ensure the proposed new £4,000,000 Cunarder, and a few things with headlines like that, the average English business man goes through his business letters in a bored kind of way and then goes off to a long lunch at his club, comes back to the office very much too well fed, signs a few letters, and then goes off to play golf. And in the evening he probably goes to dine with some equally too well-fed friends and discusses the unemployment problem and the slump in world trade in a lugubrious kind of way, without in the least taking an intelligent interest in how these financial troubles may be cured. As a matter of fact, they could quite easily be cured if only people would set to work about it in the right way.

Nobody has been ruder to the Aircraft Industry than I have been. And I am constantly being told that it does not do anybody any good. But the fact remains that the Aircraft Industry is about the one industry in the whole



BUILDING BRITISH TRADE.—A Blackburn Ripon II F (Gnome-Rhone Jupiter engine) **of the Finnish Air Force. The Blackburn Ripon is built under licence at the Finnish Government Aircraft Factory at Helsingfors. The Gnome-Rhone Jupiter is built under licence in France. So this type of machine brings us royalties from France and Finland. Sales are even better as they bring profits.**

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"AN engine which, by reason of its remarkable reliability and high efficiency, has still further enhanced the reputation of British engineering, is the Napier Lion engine, which is one of the finest in the world.

"Imperial Airways employ the Napier engine, as its outstanding features, namely, freedom from vibration, safety and economy in running, make it particularly suitable for commercial flying.

"The Napier Lion's popularity in the Royal Air Force is a striking testimonial to its excellence for Service use. Evidence of its popularity is given by the number of long-distance Service reliability flights for which the Napier has been selected. On every occasion the Napier has come through without mishap."

THE EMPIRE MAIL,
8 *April*, 1930

MAY WE SEND YOU PARTICULARS?

NAPIER

The finest aero engine in the World

D. NAPIER & SON LTD.
ACTON, LONDON, W.3.

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of the British Isles which is steadily doing an increasing export trade and is steadily bringing money into the country instead of sending it out. The Aircraft Industry does not import anything worth while in the way of raw material, parts or accessories. The actual amount of iron ore and lumber and alumina which is worked up into steel, wood and aluminium alloys, out of which its aircraft are made, amounts to very little. Most of the money in its raw material is spent on British labour. Therefore, to a certain extent the Aircraft Industry can pride itself that it is not as other men are in the English business community.

And because the Aircraft Industry has shown a degree of intelligence higher than that of most other industries in this country there is all the more reason why it should bestir itself as a body to drive into the heads of all the other business communities and into the heads of our official people the crying need for the proper development of air mail transport.

Just look at the newspapers of the last few days.

THE SOUTH AMERICAN MAILS.

In *The Times* of Sept. 18 there was a paragraph of a few lines, tucked away in a column which is devoted to brief news items, announcing that the Portuguese Government has signed an agreement with the Gnôme and Rhône Company giving them a monopoly of air mail transport in Portugal. That is, in fact, the Spela Company about which I wrote so much in THE AEROPLANE about March last,—after a visit to Portugal for the express purpose of discovering just how valuable our ancient allies in war the Portuguese would be to us in future as commercial allies in promoting air mail transport.

At that time a number of our good friends in Portugal, largely English business men whose families have been settled in Portugal for years, were very anxious that some British commercial group should be formed to develop aviation in Portugal itself and the air lines from Portugal outwards in all directions. A considerable amount of space in THE AEROPLANE was devoted to setting forth the importance of Lisbon as our first port of call for an air line with big flying-boats to South America and to West Africa and South Africa as well as an all-British line by way of Gibraltar to our Dominions in the East.

Naturally nothing came of the suggestion. Nothing ever does come of suggestions of that sort for five or ten or very often twenty-five years afterwards. But the seed has to be sown some time or other, and so the seed was duly sown.

I am not in the least disappointed about nothing being done. I never expected that it would be done. All I was after was pointing out what *could* be done and *ought* to be done. Anyhow, the French now have the Portuguese air mails.

That may work out all right in the end. Nobody particularly likes working with Frenchmen when they hold any kind of an official position. The individual Frenchman is as a rule perfectly charming. He is frequently a sportsman and a gentleman. But the little French official is one of the most obnoxious beings in the world. And nobody dislikes a little French official and his officiousness quite as much as do the other Mediterranean people.

Therefore, we shall doubtless find an enormous amount of friction arising between the French air line monopolists in Portugal, and our good friends the Portuguese, who are in fact of a temperament entirely different from and opposed to the French temperament. And in due course, when we are quite ready, and have lost an immense amount of time and money, we shall probably step in and do very good air mail work in Portugal. In a number of the South American countries we are selling British aircraft in large quantities simply because the French missions which were sent there immediately after the Armistice to grab the market in war machines made themselves unpopular, and because their machines broke up and killed so many of the local aviators. And history is likely to repeat itself in the development of Civil Aviation.

But let us consider what could be done even to-day if we set to work about it. Two or three weeks ago a Blackburn Iris flying-boat flew to Lisbon non-stop in something under ten hours. After a short stay there, it flew on to Gibraltar, and a few days later came back to Lisbon. Then it flew from Lisbon non-stop back to Plymouth. The latest revised figures for that journey show that it covered 878 miles in 8 hours and 25 minutes,—which is pretty good going for a flying-boat which, though it is quite up to date so far as Service flying-boats go, was in fact designed at least four years ago, probably five.

The design has now been superseded by half a dozen more powerful and faster types, which because they are bigger are also capable of standing heavier seas. That at any rate shows what our flying-boats can do.

Now let us consider another aspect of the question. As I mentioned in this paper last week, a letter left this office on Aug. 22 and was carried by a French Air Mail Line to the West Coast of Africa, taken by a French boat across the South Atlantic and taken by a French Air Mail Line from Port Natal in Brazil down to Buenos Aires and across Argentina to Chile. It took eleven days precisely to do this journey, which by boat and rail would have taken just on a month, and the answer to that letter was back in London on Sept. 14,—22 days after the outward letter had left. That is to say, by using that French Air Line, an English business man can get a letter out to Chile and get the answer back again in 22 days instead of in two months.

REGULARITY.

As I mentioned at the time, the critics of air mail transport say that sending letters by air mail is not worth while because we never know whether they are going to get there or not. I have the authority of Houlder Brothers, the great shipping firm who manage several of our most important shipping lines, for saying that practically all their important correspondence to South America is sent by that French Air Mail Line, the *Compagnie Générale Aéropostale*. They have used that line regularly for the past twelve months and they have never lost a letter. They cannot even trace an instance of a letter being delayed.

There, at any rate, is one English business firm which does use the most rapid means of communicating with their business connections in South America. And I hope that our nice new Industrial Council will be duly informed of the fact. Unfortunately, they have to use French transport, although they themselves are responsible for the carrying of tons of His Majesty's Mail to South America in English ships.

Now why do we have to send our letters to South America by a French line? The answer is merely that there is nobody in this country who as yet has enough confidence in air transport to form an air mail line. If our Society of British Aircraft Constructors will only get together and ram this lesson home they may succeed in forming a really big air mail syndicate with excellent results to themselves in the way of orders for big flying-boats.

Those of a doubting turn of mind may argue that all that I have said is special pleading and that Houlder Brothers have been extraordinarily lucky in their air transport. The answer to that is that the *Compagnie Général Aéropostale* has stated officially that in the past 12 months they have not lost a single mail-bag on the run between Chile and Paris. Once an aeroplane crashed in a snow-storm coming over the Andes and the letters were not recovered for some weeks. Once an aeroplane fell into a river on the way between Buenos Aires and Monte Video—but the mail-bags were recovered. The letters were delayed but they were not lost. On other occasions, there have been delays on the West Coast of Africa, and there have been delays by fog in France and so forth. But that is common to all means of transport.

SEA AND LAND DELAYS.

A few months ago this office was afflicted by a series of letters from Australia, which arrived stained with sea water, very often illegible, and smelling horribly of stewed shrimps. They all bore the mark "damaged by fire in *s.s. Comorin*." They were weeks overdue and they must have been picked up out of the Comorin at intervals for days and days, because the delivery of these evil-smelling letters was spread over a matter of weeks. That is an example of the unreliability of mail steamers.

Apart from that, everybody knows that letters from the Continent constantly come in late because of delays in crossing the Channel. And friends of mine who know the Far East say that there is nothing unusual about crawling through fog the whole way from Japan to Singapore.

Coming still nearer home, a few weeks ago, I went down to the Liverpool Aero Club Meeting by train. We left Euston in a dining car with very nearly the most uncomfortable seats on which I have ever sat. We had an execrable breakfast with the worst possible service, and would really have been much better off with a packet of sandwiches and some coffee out of a thermos flask, such as we might have had in an aeroplane.

After breakfast we changed into a first-class compartment, which certainly had seats which were a good deal more comfortable than those to which the Imperial Airways treat us, but, and, here I am sure my friend Mr. Adrian Comper will bear witness to the truth of my statement, that coach made so much noise that conversation was almost impossible unless one bellowed into one's companion's ear. Perhaps it was not quite as noisy as an Argosy, but it was a good deal noisier than a Fokker with twin Jupiter engines. And it was ever so much more noisier than a Puss-Moth.

On the return journey the train which we were to catch at Chester was half an hour late on the short run from Holyhead to Chester. And it was between forty-five and

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ENGLAND – AUSTRALIA IN 15½ DAYS!

RECORD FLIGHT IN CIRRUS AVIAN.

Squadron Leader Hinkler was one of the first well-known pilots to appreciate the possibilities of the light plane and the reliability of the CIRRUS engine.

In August 1927 he made a remarkable long-distance non-stop record on a CIRRUS-AVIAN light plane by flying from London to Riga—a distance of 1,200 miles—in 10¾ hours. This flight was a preliminary to his undertaking an attempt to fly to Australia by light plane, and on 7th February, 1928, he left Croydon Aerodrome in his CIRRUS-AVIAN en route for Australia on what was afterwards described as "the most remarkable flight in the history of aviation."

Squadron Leader Hinkler's ultimate success in reaching Australia in 15½ days—a record which still stands to-day—was an achievement which captured the public imagination, and the flight helped considerably to establish the light plane as an efficient and economical means of long-distance flying.

It will be of interest to recall the itinerary of the flight, which was as follows:—

FEB. 7th.	LONDON—ROME	1,100 miles
FEB. 8th.	ROME—MALTA	400 ,,
FEB. 9th.	MALTA—BENGHAZI—TOBRUK	980 ,,
FEB. 11th/12th.	TOBRUK—RAMLEH	350 ,,
FEB. 13th.	RAMLEH—BASRA	900 ,,
FEB. 14th.	BASRA—JASK	800 ,,
FEB. 15th.	JASK—KARACHI	580 ,,
FEB. 16th.	KARACHI—CAWNPORE	850 ,,
FEB. 17th.	CAWNPORE—CALCUTTA	650 ,,
FEB. 18th.	CALCUTTA—RANGOON	650 ,,
FEB. 19th.	RANGOON—VICTORIA POINT	500 ,,
FEB. 20th.	VICTORIA POINT—SINGAPORE	720 ,,
FEB. 20th.	SINGAPORE—BANDOENG	625 ,,
FEB. 22nd.	BANDOENG—BIMA	900 ,,
FEB. 23rd.	BIMA—PORT DARWIN	1,000 ,,
15½ days		11,005 miles

Upon the completion of the flight Squadron Leader Hinkler cabled from Port Darwin: "The continuous reliability and smooth runing of my CIRRUS engine during the whole of the flight almost became monotonous, no replacements, and inspection at Darwin showed engine to be in excellent condition."

Throughout the flight the following records were established:—

LONGEST SOLO FLIGHT EVER MADE ON ANY TYPE OF MACHINE.

FASTEST TIME, ENGLAND TO INDIA.

FIRST NON-STOP FLIGHT, LONDON TO ROME.

LONGEST FLIGHT EVER MADE IN A LIGHT AEROPLANE.

FASTEST TIME, ENGLAND TO AUSTRALIA.

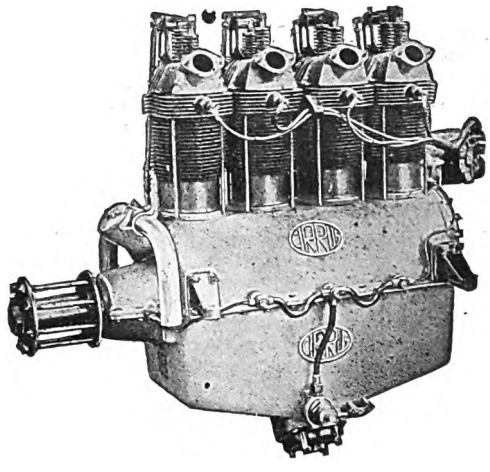
The flight from England to Australia remains to-day one of the most fascinating undertakings, and it has now been achieved three times by light aircraft powered with a CIRRUS engine.

No. 1

PIONEERING

"The early success of the Cirrus engine is bound up with the success of the Flying Club movement throughout the British Empire and all the pioneer Light Aeroplane flights were made possible by the Cirrus engine."

May, 1930 THE AEROPLANE.



CIRRUS AERO-ENGINES LTD.

AIRCRAFT WORKS,

PURLEY WAY, WADDON, CROYDON.

Telephone:—Croydon 2410. Cables:—"Ocirruso," Croydon.

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fifty minutes late arriving at Euston. That was on an ordinary service, with quite ordinary weather and it was supposed to be one of the crack main-line trains of the day.

Now fifty minutes late between Holyhead and Euston on a railway which has been running for a matter of seventy or eighty years is a great deal worse than that Imperial Airways liner which brought Miss Amy Johnson from Vienna to Croydon being a matter of four hours late—and we have heard enough about that four hours' lateness, thanks to the booming of *The Daily Mail* and other papers, to give everybody the impression that air mail transport is thoroughly unreliable. And yet millions of people in this country put up with a far greater degree of unpunctuality on our railways.

Even admitting that our railways have utterly gone to pieces since they were rationalised, or combined or socialised or whatever you like to call it, in comparison with their high efficiency when they were all kept stirred-up by keen competition, we can at any rate argue that air transport is certainly no worse on a time-percentage than railway transport where time-keeping is concerned. And the overall speed is between twice and three times as great.

INDIAN OPPOSITION.

Then in *The Times* of Sept. 19 we read that the development of the Imperial Airways route from England to India is being entirely stopped by the obstinacy of the Government of India. Apparently the Indian Government has decided that it will run its own air mail service from Karachi to Rangoon. And it seems to have ambitions to run the whole way to Singapore. As far as Rangoon the country is under the Government of India, but one believes that the Straits Settlements, which practically extend from Rangoon to Singapore, are independent of India—for which Heaven be thanked.

Imperial Airways very rightly say that if they are going to run an Imperial Air Way from England to Austradia the whole route must be under one management. Sir Eric Geddes made that clear, and gave his reasons plainly and logically, at the lunch which was given to the Delegates of the Imperial Newspaper Conference a month or two ago.

His arguments appealed particularly to the Australian Delegates because they themselves know from bitter experience the folly of having railways under different management. In the early days of Australia, when the various States were even more jealous of one another than they are now, each State laid its own railways and deliberately made them a different gauge from those of the neighbouring States. The result is that even to-day passengers have to change coaches in the middle of the night, and all goods have to be trans-shipped likewise.

Some day Australia will have to spend millions of pounds on laying a uniform gauge. And Australia will not be able to afford such a luxury for a good while to come. Therefore, the Australian end of the Imperial Air Route knows all about the folly of having a change of management and a change of system in the middle of an important line of communication.

But what we in this country would most like to know is first of all why the Indian Government objects to Imperial Airways running straight across India, and secondly how the Indian Government dares interfere in this way with Imperial Communications.

WHY AND WHO?

As that most influential of newspapers *The Times* has given so much attention to this interference on the part of the Indian Government it might go a step further and discover precisely which individuals in the Government of India are opposed to the British Empire having its communications run as they should be run. And the names of those who are opposing the direct route ought to be exposed.

We have yet to learn whether the Legislative Council of the Government of India is opposed to the through route, or whether the Permanent Officials are to blame. And we do not know whether the British-born members of the Administration are the people who object or whether the coloured members are the obstructionists.

I should hardly imagine that Englishmen, Scotsmen or even Irishmen concerned with the Government of India would be either so unpatriotic or idiotic as to prevent the running of an efficient airway from England to Australia. Therefore, there seems only the possibility that the opposition must come from the coloured members of the Council.

Mr. Ghandi's would-be rebellion has shown that Indian coloured folk on whom titles and honours have been conferred by the Government of Great Britain are in fact no more loyal to the Empire than those who have not been so honoured. And we do know that on the Legislative Council of India there are a good many people who at heart are utterly disloyal to the Empire. The really curious thing is that men who have had enough intelligence and enough education to get themselves nominated to the Legislative Council can at the same time be such utter fools as to think that India could remain in a state of peace and quietness without the alien rule of the Englishman to keep the warring factions which compose that vast continent of India, from cutting one another's throats.

The only pity is that we have not a strong enough Government to withdraw every English soldier, and every English man and woman who cares to leave, from India and let the throat-cutting begin. Within a very few months we should have the people who matter crying for us to come back and save them from themselves.

THE WAY ACROSS.

What concerns us more immediately at the moment is to discover who in the Government of India is stopping Imperial Airways from doing its duty by the British Empire. Also we should like very much to know what would happen if Imperial Airways had simply announced that they are going to fly across India just as if they were running aircraft under a foreign flag.

The Indian Government does not stop our excellent friends of the Netherlands Indies Air Service from flying across India. They tried to stop them but the Netherlanders somehow got over the difficulty. The Indian Government does not stop the French from flying whenever they like, though they do not pretend to do it regularly, from Bombay down to the French possession at Pondicherry. The Indian Government does not stop Italians, Americans, Japanese, Chinese and other curious aliens from flying across India to the further East. Therefore, an authoritative statement should be made by the India Office setting forth by what right the Indian Government can stop Imperial Airways from carrying His Majesty's Mails across India to Australia.

As an ancient person who was brought up under the Government of real men, like Lord Salisbury and Lord Beaconsfield, with family traditions of the Government of Lord Palmerston, the present system of playing at running the Empire simply makes me sick. First of all, instead of landing a company of British troops at every aerodrome which we wanted to use along the Persian Gulf, and telling the Persian army to come and push us out if they could, we wasted months and months negotiating with a lot of people who would run for their lives if we just caught them across the shins with a hockey stick.

A correspondent of the right turn of mind sent us some time ago an absolutely pitiful word-picture of a British Under-Secretary of State and a Secretary of State of the Indian Government, and one or two other official people, sitting on the sand or rather the baked mud of that desolate aerodrome at Jask with a whole Argosy perfectly ready to take off, and being detained by a verminous little Persian corporal and half a dozen ragged things that they call soldiers, just because some illiterate Persian official could not make out some document or other.

It was one of the most humiliating spectacles in the recent history of the British Empire. And it is the more humiliating because the English officials and the crew of the Argosy had quite enough muscular power to beat up all the Persian army and officials who were on the spot. They only refrained from doing so in the interests of international diplomacy.

If the British Empire is going to allow its Imperial Air Communications to be held up in this way by earth-coloured officials, either in foreign countries or in our own Empire, then the sooner we give up the idea of having Imperial Air Communications the better.

THE USES OF OUR FLYING-BOATS.

We seem to be up against two alternatives, either we must show the same ability in dominating coloured and half-coloured people which built up the Empire in the great days of Queen Victoria, or we must leave all these odd coloured folk to go their own way, and we must link up those parts of the Empire where the white man is still the lord and master by means of full-sized flying-boats.

Thank goodness that at any rate is one direction in which we still lead the way. We may not have the biggest flying-boat in the world and there may be other flying-boats which are even faster than ours, and there certainly have been flying-boats with a longer range than any which we possess. But, taking them all round, for sea-worthiness and air-worthiness and general reliability there is no flying-boat in the World to touch any one of the three or four best British makes of flying-boat.

Here, at any rate, is some hope of Imperial Communication, and of adequate commercial communication, with the rest of the World. But the question is, what is the British Government and what is the British commercial community going to do to develop these communications?

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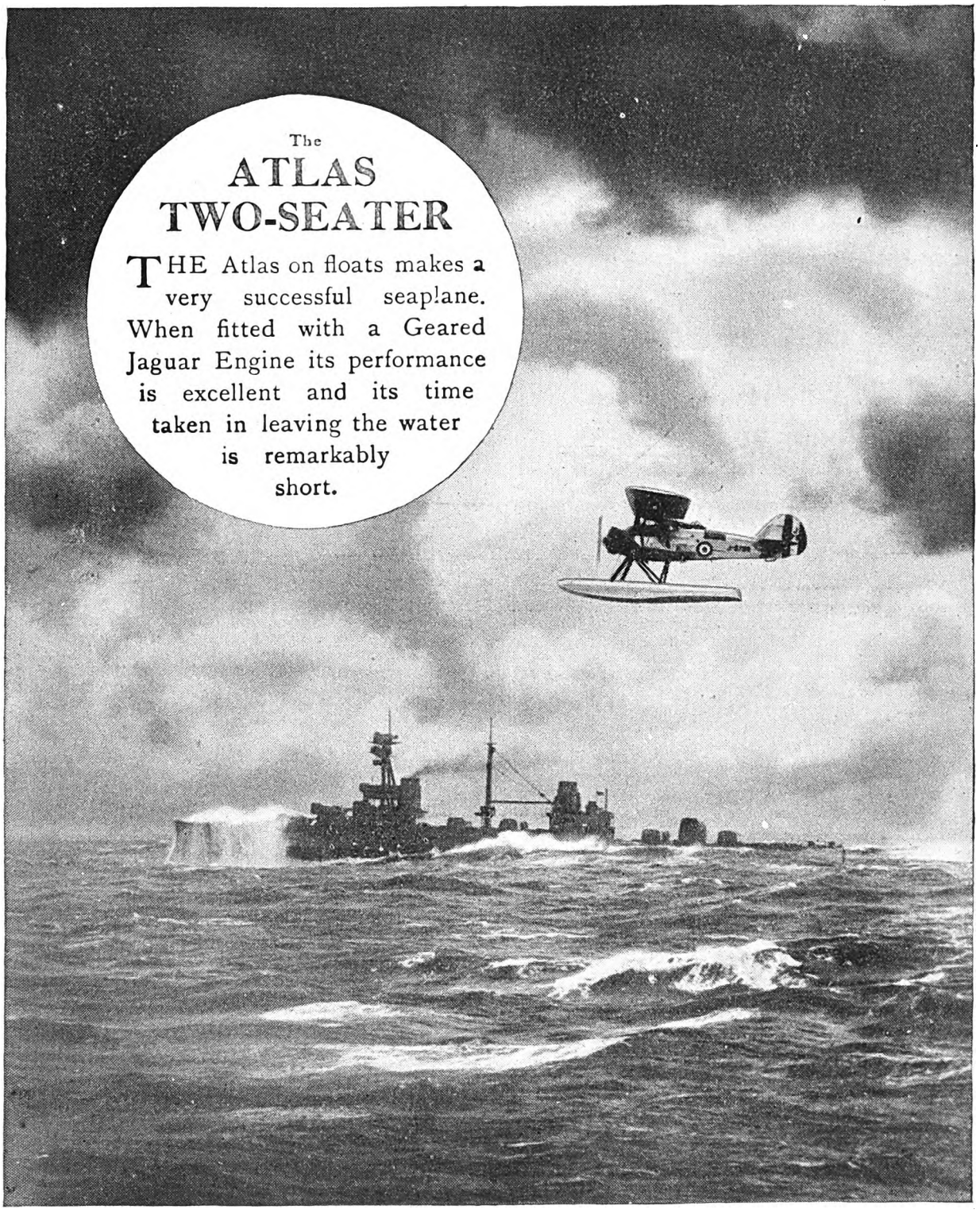

SIR W. G.

ARMSTRONG WHITWORTH

AIRCRAFT LIMITED

Works and Aerodrome: Whitley, Coventry. London: 10, Old Bond Street, W.1.

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Earlier in this article I mentioned the alleged refusal of Lloyds to insure the projected £4,000,000 Cunard steamship. One newspaper commenting on this quotes the underwriters of Lloyds as arguing that there is no object in having such a ship. According to this paper, Lloyds say that such a ship is only an advertisement for British steamships in general as an off-set to the big German and American ships. They argue that the thing cannot possibly pay for itself without a colossal subsidy from the British Government, and, if that be so, it is vainglorious and not profitable.

That may or may not be true. I do not profess to be an expert on the psychology of steamship lines, or on their economy. But one thing is perfectly certain,—that is that if the commercial community chose to spend four million pounds on organising British air lines to those parts of the world where business can be developed, either inward or outward, they would get interest at the rate of one hundred per cent. on their outlay within just about as much time as the four million pound Cunarder would take to build.

A very few hundreds of thousands of pounds, let alone four millions, would lay out and equip a flying-boat line to South America which would bring our Brazilian and Argentine correspondents within a week of us. Probably Rio could be reached in four days and Buenos Aires in five, as against anything between 15 and 20 days at present.

Think what that would mean in saving of time in the distribution of advertisements and samples, and in the going and coming of actual business correspondence.

With a West African coastal air-line Cape Town would take no longer to reach than Buenos Aires, at any rate. Even by keeping close to the coast in the Gulf of Guinea the route by West Africa is a good deal shorter than going all the way round by Egypt. And quick communication down that coast would mean immense development of the industrial resources of the interior of our West African possessions.

Already that enterprising and rich country Belgium, small as it is, finds that an air-line across its possessions in the Congo is a paying commercial proposition, and if an air-line pays Belgium how much more are similar internal air-lines going to pay us, with our much greater possessions and our much greater volume of trade with other countries besides our own possessions.

ENTERPRISE VERSUS SUBSIDY.

Nearly everybody who has any air-line proposition on hand at all starts out with the supposition that air-lines cannot pay without a subsidy either from the Imperial Government or from the local Dominion or Colonial Government. That theory has been completely upset in Australia quite recently. And it looks like being upset in Africa.

Australia has taught us an immense amount about air-lines. The famous Queensland and Northern Territories Air Services Ltd., commonly known as Qantas, formed by the energy and initiative of Mr. Hudson Fysh, has been running with the help of a subsidy for years and years, with as near as no matter 100 per cent. efficiency and practically no accidents. It has opened up whole areas which were almost uninhabitable before for lack of communication, and it has increased business in those areas and the districts which are connected up with them enormously, simply by expediting business communication.

Similarly, West Australian Airways, originated very soon after the Armistice by that gallant soldier and highly-efficient business man Major Norman Brearley, has increased business very considerably along the West Coast from Perth up to Derby. And now Adelaide is linked up with Perth and has speeded up the whole mail service of South-Eastern Australia, with the help of a subsidy.

But there is a more surprising development. Wing Commander Kingsford Smith and Flight Lieutenant Ulm, by virtue of the advertisement which they got of their flight from America to Australia across the Pacific, managed to get together enough capital to organise a line from Sydney up the East Coast to Brisbane. They use Avro Tens, that is, the bigger three-engined Avro monoplane, for the job, and one is told on the best of authority that the line is paying hand over fist without any subsidy at all.

Naturally they have to thank the earlier subsidised lines for their success, because unless those lines had educated the population of Australia into the use of Air Mail communication, the Sydney-Brisbane Line would not have been used by the Australian business men in the way it is. But the point is that they are running without subsidy, and I am told by people who know that if only they go on running that line in a business-like way as they have begun it they cannot fail to build up a really money-making firm of high standing.

In Kenya Colony the Wilson Air Lines, founded and financed by that splendid pioneer, Mrs. Wilson, who is devoting her energy and her fortune to developing air transport, is doing steadily increasing business. Mrs. Wilson gets no subsidy, but she is determined to establish her line on a sound footing. And, according to Mr. Campbell Black, who is running the machines, the prospects are quite good.

In Canada profitable air transport without subsidies is so much an every-day business that there is no need to refer to it here. And unfortunately the money spent on equipping those Canadian lines has gone to the United States.

AND AIRSHIPS.

Two weeks ago I mentioned the possibility of an airship line across the Atlantic, equipped with airships on the lines of R.100, but considerably improved. Sir Dennistoun Burney did in fact make a definite offer to the Canadian Government to run a whole airship line on an expenditure of four million pounds, spread over probably four or five years.

Compare the possibilities of such a service with the possibilities of the proposed four million pound Cunarder. Which is going to be the greater benefit to the British Empire,—a three-days' mail service to Canada, which is perhaps the most violently progressive of all the British Dominions, and most ready to buy British goods if only British manufacturers will take the trouble to make what the Canadian Market wants, or a great Cunard steamship running across to the States for the benefit of American millionaires?

Of course, the Cunard Company does bring an enormous amount of money into this country by carrying American passengers. But everything which is done to make communication with America easier means that we buy more goods from the United States and so increase the trade balance against ourselves.

Nobody loves the Americans as a branch of the British people more than I do, but affection need not blind one to the fact that if we could cut off all trade with America for ten years we should be hundreds of millions of pounds better off than we are to-day.

Certainly we have much to learn from America about making what people want and how to make money out of doing so. That is our great failing as a commercial people. And the annoying thing is that the very people in America who do the most to build up American trade are the people who left this country because they were so utterly fed up with the stupidity and conservatism of the heads of our big businesses and manufacturing concerns. But that does not alter the fact that if we could bar American goods from this country, we have learned enough from America to make exactly what America makes, and so we should make those goods here ourselves; or alternatively, Americans would come over and make them on the spot for us as they are making certain American motor-cars and tyres and gramophones and all kinds of patent medicines and patent foods.

I am getting a trifle away from the point, which really is that four million pounds spent right now on developing an airship service between England and Canada would be worth hundreds of times as much in twenty years' time as any benefits derived from a four million pound Cunard steam-boat running between England and New York. The snag is that the great English steamship companies, who are the people who should be best able to tackle the building and organisation of air-lines either by airship or by big flying-boats, between England and North and South America, are unfortunately the very last people who are likely to do it. They still suffer too much from the Marine Mind, with its supreme disregard of time and space.

THE WAY TO EARN DIVIDENDS.

And yet if only the idea could be driven into the heads of the Managers of these steamship lines that by organising air-lines, to speed up communication and so help British trade, they would be increasing their income from the increased cargo which they would have to carry, possibly something might be done about it. So here again one suggests that the S.B.A.C. might organise something in the way of a campaign of enlightenment.

If only the Aircraft Industry will set to work and co-operate in selling Aviation to British Business men they will find that such action is the best and easiest way of selling their aircraft. Air lines all over the World where we want to do business would cost far less to equip and organise than the British railways cost which built up our great prosperity between 1840 and 1870.

At that time we were the World's greatest manufacturers. People from foreign parts came to us begging to be allowed to buy our products, and our railways brought raw materials inland and took manufactured goods to our seaports. Now we are up against fierce competition, so our only hope is to go out and sell. We can do so better because quicker by air than by any other means of transport. So let us set about it as we set about organising railways and steamship lines between fifty and a hundred years ago.—C. G. G.

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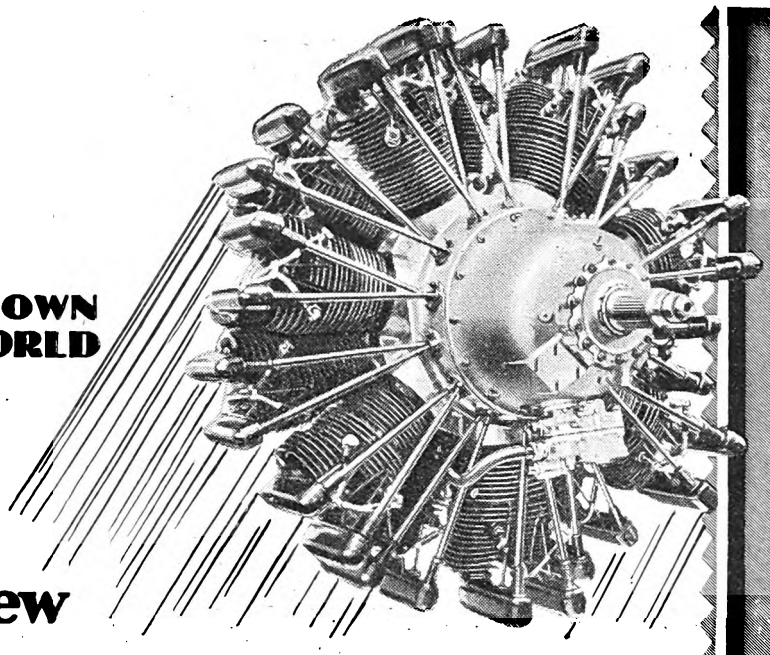

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ON R.A.F. EQUIPMENT AND OVERSEAS TRADE.

Nothing does more good than a real good agitation, provided that it is in a justifiable cause and well-directed. On the other hand nothing does more harm than an ill-judged and ill-managed agitation. Therefore, I am very sorry to see my good friend, Major C. C. Turner of *The Daily Telegraph* flying right off the handle and starting an agitation on entirely misguided lines. In *The Daily Telegraph* of Sept. 15, the reader's eye is caught by a double-column heading shrieking "Out-of-Date Machines of the R.A.F." This is followed by "Best Types Going Abroad," "Lessons of the Recent Mimic Air War," and "Personnel Handicapped by its Equipment."

In his article, Major Turner says that with the exception of two or three bombers the R.A.F. machine types are out of date. In the recent air exercises bombers were in many cases faster than the defending fighters, which at their rate of speed, could rarely interfere in a raid. And, this is the capital crime of the administration of the Air Ministry, he says, "By contrast, foreign countries are able to buy the latest types of British aircraft, which are only supplied to our own Service when they are becoming obsolescent."

Major Turner's last charge is:—

Our R.A.F. possesses two squadrons of fairly up-to-date Fighters and one of the latest Day Bombers. But ten Fighter squadrons still use types which really ought to have come to the end of the long and excellent years of service they have rendered. Yet without achieving any sensible result in economy in expenditure—for renewals are ever in progress—their life is being unduly prolonged.

He emphasises the wickedness of this by saying:—

An anomalous situation exists at the present time by reason of the fact the British aircraft manufacturer is able to supply to foreign countries types of aircraft which, although officially adopted by the R.A.F., are not yet being issued to it.

THE ESSENCE OF FOREIGN TRADE.

Now the prime error of Major Turner's argument lies in the fact that for more than ten years after the Armistice, British aircraft manufacturers agitated as hard as they could to be allowed to export their newest types of war machines before they became obsolete.

Those foreign nations which desire to have air forces and have no Aircraft Industry of their own naturally wish to have the most up-to-date possible aeroplanes. Also they all know that British aeroplanes and British aero-engines are very much more reliable and very much better built than those of any other nation. And they prefer to deal with British firms, because they know they are honest.

But they are not going to buy British aeroplanes the designs of which are eight or ten years old when they can buy French or American or Italian war machines which were designed not more than a year or two before they are bought.

As I have pointed out earlier in this paper the only cure for unemployment in this country is to sell things to other countries. And anything which increases our sales to other countries is of vital value to the British nation. The British Aircraft Industry is the one industry in this country which has shown a remarkable increase in the past few years. Some months ago we published in this paper the comparative figures for the past few years, and the figures for 1929 were as much in some instances as ten times as great as they were in previous years.

This remarkable increase has been very largely caused by the fact that within the last three years British aircraft manufacturers and engine manufacturers have been allowed by the Air Ministry to offer their latest products for sale to approved foreign nations as soon as the type has been adopted for the Royal Air Force. And this remarkable change in policy at the Air Ministry came about because of the foresight and the very true patriotism of Air-Marshal Sir John Higgins, who has, unfortunately from one point of view and very fortunately from another point of view, recently retired from the Air Force and joined that great group of firms over which Mr. J. D. Siddeley presides.

Thanks to that complete change of policy, which was influenced by the urgent and repeated requests of the Aircraft Industry, we have brought into this country through the sale of British aircraft and engines, millions and millions of pounds which we should not have done otherwise. If only other British industries had gone to work as energetically we should not have had all the present outcry about unemployment.

To put Major Turner's complaint into plain words, the Hawker Company are allowed to export Hornets which have a speed of 220 to 230 miles an hour and Hart two-seater general-purpose machines which have a speed of over 200 miles an hour, and the Fairey Company are allowed to export Fireflies, which have even a slightly higher top speed than that of the Hawker Hornet and the Bristol Company are allowed to export Bulldogs, which are at the moment the most efficient radial-engined single-seaters. But at present there are only two squadrons in the R.A.F. equipped with Bulldogs and only one squadron equipped with Harts. So far as I know there is no squadron yet fully equipped with Hornets, and none of the Naval flights are equipped with Fireflies as modified to be used as deck-landing ship-fighters.

THE SENSIBLE VIEW.

Let us look at the whole situation sensibly. Aeroplanes of all those makes are going out to certain foreign powers which cannot possibly hurt us. In fact, there are no foreign powers which could hurt us, even if we sold our best machines to them in quantities. If their aeroplanes were equal to ours, we could always beat any other power on the all-round ability of our pilots, and on the efficiency of our maintenance. And nobody is going to claim seriously that we incur grave danger by selling our latest types of aeroplanes to Belgium and Greece and Chile and Latvia, to name four countries in particular to which our most modern aircraft are in fact being sold. On the other hand, we are bringing goodly sums of money into this country by those sales.

Supposing we followed Major Turner's policy and refused to sell machines to those countries, we should be that much money out of pocket. And supposing we immediately ordered vast quantities of those machines to re-equip squadrons of the Royal Air Force, who would be any the better for it?

The money would come out of the pockets of the British taxpayer, and it would go into the pockets of the aircraft manufacturers and engine manufacturers. Most of it would come out of their pockets again in the form of taxes, and would go into the Exchequer. And out of the Exchequer it would go into the pockets of the unemployed in the form of doles. Even granted that most of the profit on those foreign orders still goes into the pockets of the can't-works and won't-works of the nation, we have at any rate the satisfaction of knowing that it comes from foreign countries and not out of our own pockets.

Let us consider the cost to the British Taxpayer of equipping ten squadrons of fighters with new machines. There are twelve machines to a squadron and there are twelve machines, or at any rate the components of twelve machines, held in reserve. That means twenty-four machines per squadron, or two hundred and forty machines in all. And if we reckon the price of those machines at £5,000 a piece, we should be getting them cheap. That is to say, we should hand out £1,200,000 for new equipment which really is not vitally necessary at the moment. Surely we are far wiser to import a few million pounds of foreign money into the country.

The machines with which our fighter squadrons are equipped at the moment may not be as fast as our latest type, but at any rate they are every bit as safe to fly. And by now, thanks to standardisation, they are considerably cheaper to buy.

Considering that the great majority of deaths in the Royal Air Force are caused by sheer foolishness, or by the vanity of young pilots trying to show off, and considering that for every one who is killed at least a dozen machines are crashed in exactly the same way, spending vast sums on machines for young officers to crash seems almost uneconomic.

Far better let them crash all the old machines first, so long as we know that we have in this country aeroplanes which are far faster machines, and have a far higher all-round performance, which can be put into production immediately if we should be landed into a war.—C. G. G.

THE IMPERIAL CONFERENCE.

The list of engagements arranged for the members of the Imperial Conference, which opens in London on Sept. 30, includes an Air Display at Croydon on Oct. 25.

This display will be representative of both Service and Civil Aviation.

GOOD ADVICE TO THE AIRCRAFT INDUSTRY.

"If advertising is dropped it will be found that sales drop too," is the opinion of Mr. Harold Eley, Advertising Manager of the Dunlop Company, given in his book, "Selling by Post," just published by Pitmans,—and obtainable from THE AEROPLANE Book Dept., Cannon House, Pilgrim Street, E.C.4.

In this and in a companion book, "Hire Purchase," by Mr. Eley and Mr. Howard Withey, the whole processes of these two rapidly-growing sales methods are interestingly described. Mr. Eley emphasises the importance of linking up advertisements with window displays and of backing up all announcements with service and quality.

"Press advertising must receive your attention if you aim at complete success," is his advice,—and this should be particularly laid to heart by the Aircraft Industry.

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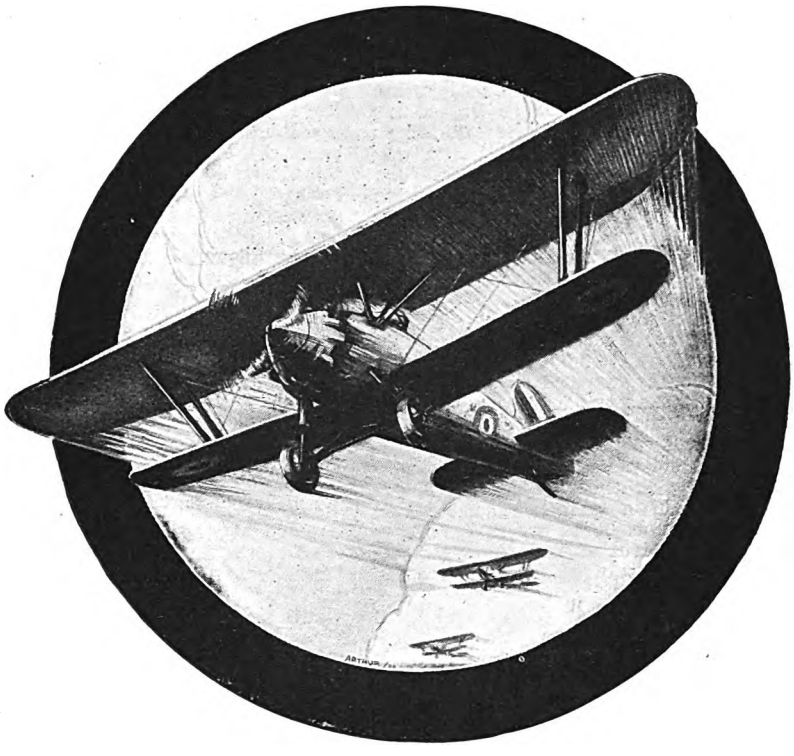

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ON THE SAFETY OF FLYING BOATS.

An officer who has had considerable war experience raised a point the other day which deserves the close attention of all who are concerned with flying-boats. In the course of an argument on the uses of these craft he wanted to know how long the average flying-boat would last in a war if attacked by anything like adequate fighting machines.

He admitted that with the excellent gun-positions which have been devised for flying-boats they could probably fight off any ordinary attack. But he argued that even an attack which was beaten off would probably manage to make a few bullet-holes in the boats. And he argued further that though a bullet-hole put through the bottom of a boat from below might make a hole the size of a pencil which might be plugged from the inside with a piece of cork (if it could be got at), a bullet penetrating the deck from above would probably expand and punch a hole in the bottom of the boat that you could put your fist through. If only one bullet did that, what, he asked, would be the life of that boat after it alighted?

The design of all flying-boats is such that there is very little chance of doing anything in the way of stopping a really big hole in the bottom of a boat from the inside while it is in the air. And in most boats the inside of the hull is so full of lockers and shelves and assorted gadgets that holes could be made in a lot of places which could not be reached in any way.

Perhaps those officers and men whose duties call upon them to handle flying-boats will discuss this problem among themselves and decide what they are going to do about it in case of war. It is not a thing that can be left till war breaks out before we start thinking about it.

Evidently the only effective temporary remedy is some kind of a collision-mat such as is dropped over the side of a ship and pulled under the bottom to keep the water from getting in through a big hole. But collision-mats would not be easy to apply in the air and there would not be much time to apply them after the boat had alighted and the water began to come in, even if they were part of the equipment of a flying-boat,—which they are not.

Writing purely as an ignoramus in such matters I do suggest that there might be some possibility when a boat is hit of passing a couple of lines right round the hull, say from the after-gunner's cockpit where the cross-section of the hull is small, and then passing the lines forward to the main part of the hull so that immediately on alighting a collision-mat could be pulled round under the hull. Or perhaps an even easier method would be to drop the lines round the hull from the forward gunner's cockpit with the collision-mat attached, for then the tendency of the air-stream might be to blow it against the hull and blow it aft.

One suggests further that some quite interesting experiments might be tried at once in connection with these future possibilities.

Presumably practically any squadron of the R.A.F. has a few sheets of duralumin handy of the same gauge as is used for the plating of duralumin hulls. And there ought not to be much difficulty in getting a few sheets, say two or three feet square of the stainless steel which is being used in the most modern hulls.

These sheets could be stuck up a matter of four or five feet apart and bullets could be fired through one to see what the effect of the exit of the bullet would be on the further sheet. In this way the size of the hole which would be likely to be made by an out-going bullet could be decided at once.

After that a few simple experiments could be made with the strength and thickness of canvas which would make an effective stopper for such a hole. And then experiments could be made in working a mat of such canvas over the bottom of a flying-boat hull in the air and alternatively the time which would be taken in getting such a mat under the hull of a flying-boat in the water.

No doubt this subject has already been discussed by the brighter brains of the Air Staff and of H.Q. Coastal Area. But one has never heard an argument on the subject among the sea-going members of the Air Force. Such arguments must certainly have happened, but there is the possibility that these notes may stir up still further argument, and that such arguments may in the end get something done in the way of producing standard equipment to prevent flying-boats costing anything between £20,000 to £50,000 from sinking in a few minutes after alighting merely because somebody has put a halfpenny bullet through them from top to bottom.—C. G. G.]

ROYAL PROGRESS.

On Sept. 19 H.R.H. the Prince of Wales arrived at Le Bourget from Berck Plage in his private Puss-Moth. He was accompanied by General Trotter, and his pilot was Flt. Lt. Fielden.

The Prince of Wales and his brothers are making increasing use of the fastest and most comfortable means of private travel.

His Royal Highness intended to fly on to the South of France, but cancelled this journey and arranged to return to England by air on Sept. 23.

THE ROYAL AERONAUTICAL SOCIETY.

Mr. C. R. Fairey, M.B.E., F.R.Ae.S., President of the Royal Aeronautical Society, 1930-31, will deliver the Inaugural Lecture of the 66th Session on Thursday, Oct. 9. The lecture will be delivered in the Royal Society of Arts at 6.30 p.m. on "The Growth of Aviation."

In the course of the lecture Mr. Fairey will trace the development of Aviation since the War on the technical and commercial side. The chair will be taken by Colonel the Master of Sempill, A.F.C., A.F.R.Ae.S.

The first public appearance of Mr. Fairey in his new official position should bring a large audience. And certainly none is better entitled to speak authoritatively on the growth of Aviation than is Mr. Fairey, who began as a junior employee in 1909 and is to-day the head of one of the greatest and most progressive of aircraft firms.

AMERICAN PENETRATION INTO NEW ZEALAND.

A company known as the New Zealand Airways (Boeing) Ltd. is planning to operate passenger air services between Auckland and Wellington and between Wellington and Invercargill. The North Island route, starting from Wellington, will be to New Plymouth, Auckland, Gisbourne and back to Wellington. In the South Island the route will be from Wellington to Nelson, Christchurch, Dunedin and Invercargill and return by the same route.

The company, it is said, will be financed entirely by New Zealand capital and will not have a Government subsidy. It is being organised by the Boeing Aircraft of Canada Ltd., of Vancouver, B.C., which is a Canadian offshoot of the Boeing Airplane Co., of Seattle, Wash., U.S.A. Six Boeing flying-boats, of American design but assembled in Vancouver, are awaiting shipment to New Zealand. Four Boeing pilots are to accompany the flying-boats, two to operate the air routes and two to train pilots at flying schools which are to be established at Auckland and Wellington respectively.

Thus does an American company penetrate into a British Dominion under British colours. And thus do English firms lose business through lack of equal enterprise.

New Zealand is at present suffering from antipodean financial trouble and in an effort to retrench compulsory military training has been abolished. Nevertheless the Civil Aviation vote has been increased from £7,300 to £11,500 this year, and a fair proportion of this is apparently earmarked for Light Aeroplane Club subsidies.

As the result of Admiral Jellicoe's term of Governor-Generalship, New Zealand is committed to a costly Naval contract to maintain a big cruiser force. With the abolishment of compulsory military training, the partisans of the Army are resuscitating the Kitchener Report of 1911 to support their arguments for its re-instatement. So far nobody with sufficient pull has reminded the National Defence League that there is a very recent Report prepared by Sir John Salmond in 1928 upon which to base the Defence Policy of the Dominion.

This year's Military Aviation Vote has been reduced from £53,000 to £40,836 and so by weakening the position of Aviation in general in New Zealand, by cutting down the buying of British aircraft to support a sound local air programme, the way is being thrown open to outside enterprise backed by American dollars in Imperial disguise.

No matter what policy may be adopted by any Government in an effort to further its own particular programme, if the population which it professes to represent needs aviation to aid it in business or to provide it with pleasure then it will support aviation whether it be British or foreign. It will be interesting to see what support is given to New Zealand Airways (Boeing) Ltd.

THE SABENA ACCIDENT.

A verdict of "Accidental Death" was returned after the inquest on M. Edouard Sobry and M. Fernand Cooremans who were killed when the *Sabena* night air mail crashed near Croydon on Sept. 11.

Major Cooper, of the Air Ministry, said that he had examined the scene soon after the crash and had come to the conclusion that the pilot made a normal take-off and one circuit, but that he decided to land on finding low thick clouds. He was approaching the aerodrome in a wide left turn and seemed to have got lower than he intended. He saw trees between himself and the aerodrome lights so opened his engine and went into a sharp right turn to avoid them. A wing tip touched the ground and the machine cartwheeled and broke up.

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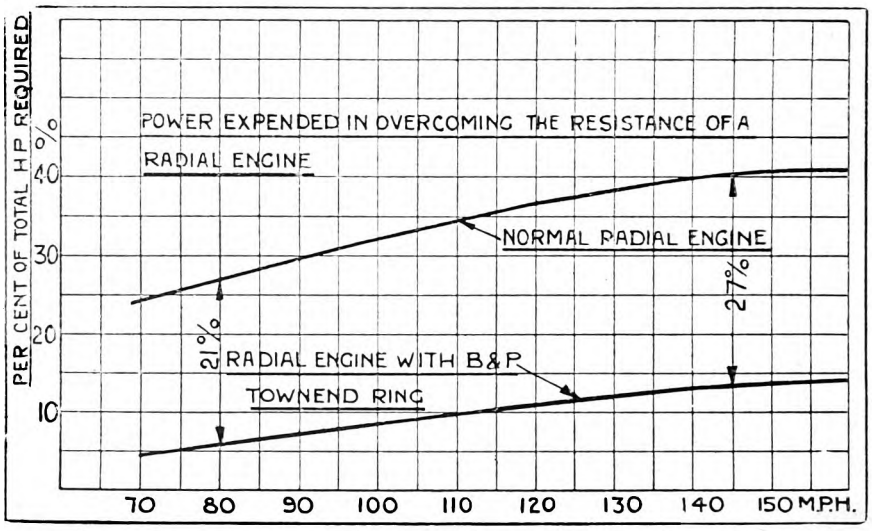
TO USERS OF AIR-COOLED RADIAL ENGINES

Users of air-cooled radial engines are expending a large proportion of their engines' output in driving the engines themselves through the air.

The upper curve in the figure below shows the power expended, in the case of a machine with a 450 H.P. Radial engine, in overcoming the resistance of the engine at speeds of from 70 to 150 m.p.h. This wasted power is expressed as a percentage of the total H.P. required by the whole aeroplane at the particular speed.



The lower curve shows how the power thus wasted can be reduced by fitting the engine with a Boulton & Paul TOWNEND RING. This saving amounts to from 20% at low speeds to 27% at high speeds.

25% REDUCTION IN POWER expended at cruising speed means either:

(A) 25% REDUCTION IN FUEL CONSUMPTION for the same range and speed.

25% REDUCTION in engine output for the same range and speed, with a consequent increase in engine life between overhauls, reduced MAINTENANCE COSTS and increased reliability.

AN INCREASE IN PAY LOAD corresponding to the reduced weight of fuel required.

OR

(B) 10% INCREASE IN CRUISING SPEED for the same engine power.

10% REDUCTION IN FLYING TIME for the same service, and hence

10% REDUCTION IN FUEL CONSUMPTION.

10% REDUCTION IN MAINTENANCE & DEPRECIATION.

USERS OF RADIAL AIR-COOLED ENGINES INTERESTED IN SECURING ECONOMY IN OPERATION SHOULD APPLY FOR INFORMATION CONCERNING THE TOWNEND RING TO :—

BOULTON & PAUL LTD. NORWICH

London Office: 139, Queen Victoria Street, London, E.C.4. ('Phone: Cent. 4642.)

DESIGNERS AND MAKERS OF ALL-METAL AEROPLANES & AIRSHIPS.

Contractors to the Air Ministry, the Admiralty, the War Office, H.M. Board of Works, the Crown Agents to the Colonies, English, South American and Indian Railways, Soudan, South African and Egyptian Governments.

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THE ROYAL AIR FORCE.

The London Gazette.

Air Ministry, September 16.

ROYAL AIR FORCE.

GENERAL DUTIES BRANCH.—Lt. J. E. Vallance, R.N., is reattached to the R.A.F. as a Flg. Off. with effect from Sept. 1 and with seniority of Jan. 12.

Plt. Off. on probation S. N. Wiltshire is confirmed in rank (Aug. 22).

The following Plt. Offs. are promoted to the rank of Flg. Off. (Aug. 22):—G. N. Roberts, H. L. Smith, G. E. Mustard, R. E. H. Beaton, R. A. Davies, G. P. Longfield, G. P. Marvin.

Flt. Lt. F. W. W. Wilson takes rank and precedence as if his appointment as Flt. Lt. bore date Jan. 1, 1928, immediately following Flt. Lt. M. B. Mackay on the graduation list. Reduction takes effect from July 2.

The following Flg. Offs. are transferred to the Reserve, Class A (Sept. 12):—E. G. L. Russell, A. W. Shaw, E. A. Swiss. Flt. Lt. A. W. Rowbotham resigns his S.S. comn. (Sept. 10); Flg. Off. E. M. Thompson relinquishes his S.S. comn. on account of ill-health (Sept. 12).

The following Lts., R.N., Flg. Offs., R.A.F., cease to be attached to the R.A.F. on return to naval duty:—C. A. R. Gibb (Sept. 1); G. Willoughby (Sept. 2).

Flg. Off. R. Mundy-Cox relinquishes his S.S. comn. on completion of service (Sept. 16). The S.S. comn. of Plt. Off. on probation S. M. Worrall is terminated on cessation of duty (Sept. 15).

MEMORANDUM.—The permission granted to Lt. J. Bradbury to retain his rank is withdrawn on his enlistment in the Supplemenetary Reserve (Aug. 27).

RESERVE OF AIR FORCE OFFICERS.

GENERAL DUTIES BRANCH.—The following Plt. Offs. on probation are confirmed in rank:—C. M. Dransfield (July 31); P. E. Hudson (Sept. 2); A. Dewsbury, L. E. Hunt, F. Ingham (Sept. 4).

The following are transferred from Class A to Class C:—Flt. Lt. A. Haines (Jan. 3); Flg. Off. K. K. Brown (Sept. 17); Flg. Off. C. N. A. B. Mumby (Jan. 19). The following Flg. Offs. relinquish their comns. on completion of service:—D. G. Pinnell (Aug. 21); B. H. Shaw (Sept. 2). Flg. Off. K. W. Brewster, M.C., relinquishes his comn. on account of ill-health and is permitted to retain his rank (Sept. 17). Flg. Off. A. A. N. D. Pentland, M.C., D.F.C., relinquishes his comn. on completion of service and is granted permission to retain the rank of Flt. Lt. (July 21).

AUXILIARY AIR FORCE.

GENERAL DUTIES BRANCH.—No. 605 (COUNTY OF WARWICK) (BOMBER) SQUADRON.—Plt. Off. George John Paddock resigns his comn. (Aug. 27).

PRINCESS MARY'S ROYAL AIR FORCE NURSING SERVICE.

Sister Miss E. M. Featherby resigns her appointment (Sept. 10).

Appointments.

Week ending September 22.

GENERAL DUTIES BRANCH.—Wing Commander D. Harries, A.F.C., to H.Q., Coastal Area, pending posting to the Air Ministry, 8/9.

Squadron Leaders D. W. Clappen, to H.Q., 'Iraq Command, 22/8. C. H. Keith, to Special Duty List, whilst employed with the Superintendent of Design, Royal Arsenal, Woolwich, 15/9. A. Fitz-R. Somerset-Leeke, O.B.E., to Special Duty List, 23/9. R. C. Hardstaff, to No. 70 Sqdn., 'Iraq, 22/8.

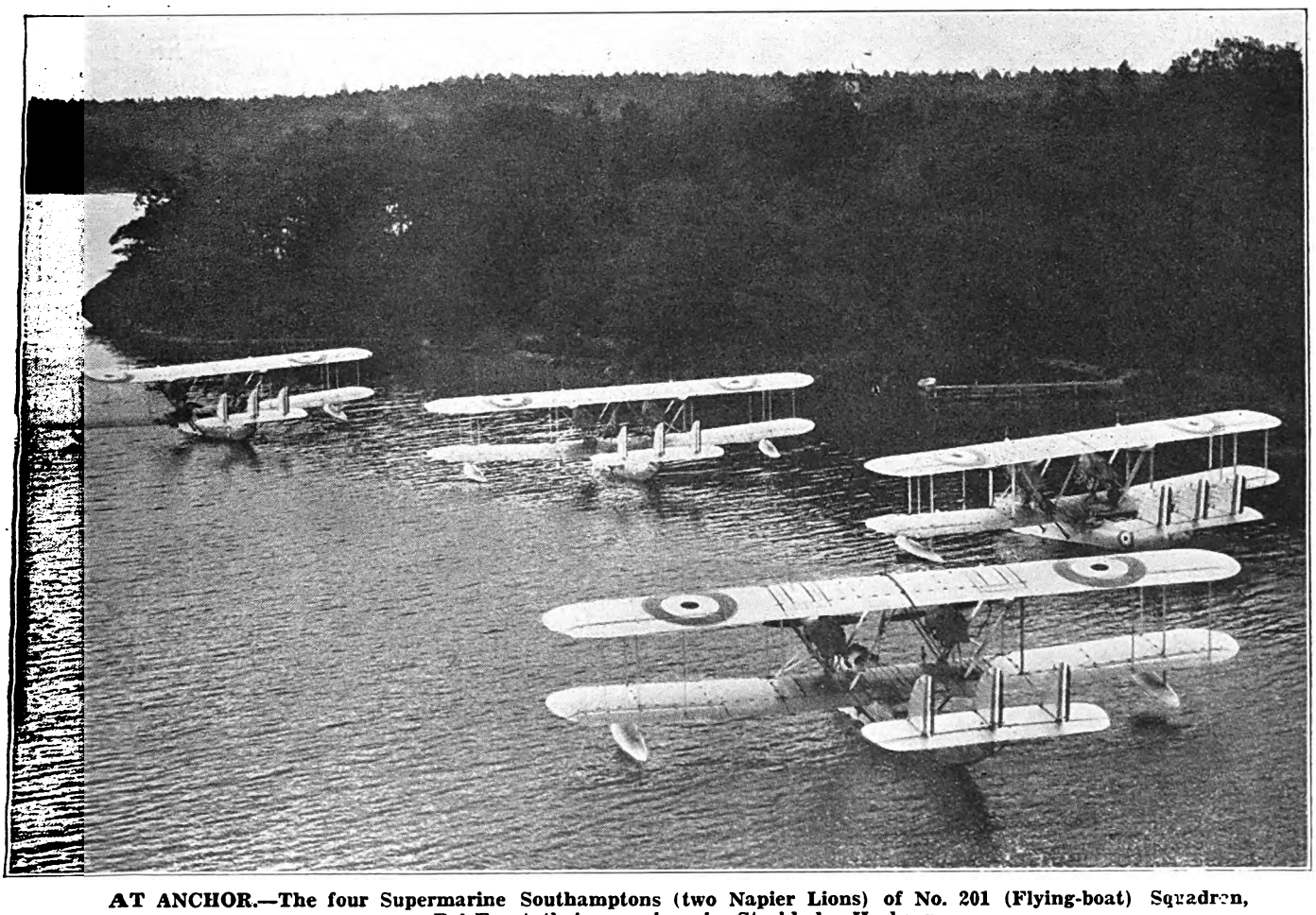
Flight Lieutenants D. H. de Burgh, A.F.C., to School of Photography, S. Farnborough, 4/8. S. A. Turner, M.B.E., to R.A.F. Depot, Uxbridge, 9/9. J. MacG. Fairweather, D.F.C., to R.A.F. Depot, Uxbridge, 1/9. H. W. Pearson-Rogers, to No. 19 Sqdn., Duxford, 12/9. A. C. Cuming, to H.Q., R.A.F., Transjordan and Palestine, 5/9. S. N. Webster, A.F.C., to No. 70 Sqdn., 'Iraq, 18/8. E. T. Carpenter, A.F.C., to No. 43 Sqdn., Tangmere, 9/9. G. H. Loughnan, to No. 16 Sqdn., Old Sarum, 5/8. J. Potter, to R.A.F. Depot, Abukir, 13/9. F. H. E. Reeve, to H.Q., R.A.F., Transjordan and Palestine, 13/9. E. H. Rundle, to R.A.F. Depot, Abukir, 13/9. J. Noonan, D.S.M., to No. 2 A.C. Co., Palestine, 13/9. F. E. Watts, to No. 4 F.T.S., Abu Sueir, 13/9.

Flying Officers C. W. F. Carter, to No. 208 Sqdn., Heliopolis, 13/9. F. R. Jones, to No. 47 Sqdn., Khartum, 13/9. F. P. Hewitt, to No. 45 Sqdn., Helwan, 13/9. S. P. Richards, to No. 6 Sqdn., Ismailia, 13/9. C. M. Champion de Crespigny, to No. 208 Sqdn., Heliopolis, 13/9. A. F. Merritt, to R.A.F. Depot, Uxbridge, 15/8. K. E. Parker, to H.M.S. *Eagle*, Mediterranean, 17/7. J. W. P. Sloan, to No. 207 Sqdn., Bircham Newton, 15/9. P. A. Moritz, to R.A.F. Depot, Uxbridge, 1/9. F. Townsend, to No. 2 Sqdn., Manston, 8/9. E. L. J. Rowe, to R.A.F. Depot, Uxbridge, 11/9. D. L. Iremonger, to Aircraft Park, India, 16/9. C. K. Turner Hughes, to No. 24 Sqdn., Northolt, 11/9. J. N. Jaques, to O.F.S., Wittering, on appointment to a S.S. comn., 9/9.

Pilot Officers T. W. Hoyle, to Aircraft Park, India, 16/9. W. S. Hebden, to No. 20 Sqdn., India, 16/9. P. F. Canning, to No. 27 Sqdn., India, 16/9. F. F. Wicks, to No. 5 Sqdn., India, 16/9. H. D. Primrose, to No. 3 Sqdn., Upavon, 13/8. W. I. H. Burke, to No. 202 Sqdn., Malta, 12/9.

MEDICAL BRANCH.—Wing Commander R. H. Knowles, to H.Q., Fighting Area, Uxbridge, for duty as P.M.O., 30/9.

Flight Lieutenants B. W. Cross, to R.A.F. Training Base, Leuchars,



AT ANCHOR.—The four Supermarine Southamptons (two Napier Lions) of No. 201 (Flying-boat) Squadron, R.A.F., at their moorings in Stockholm Harbour.

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29/9. P. H. Musgrave (Quartermaster Medical), to R.A.F. Officers' Hospital, Uxbridge, 9/9. J. E. Foran, to No. 1 F.T.S., Netheravon, 18/9.

Flying Officers E. W. B. Griffiths, to Princess Mary's R.A.F. Hospital, Halton, 30/9. J. Holt, to Princess Mary's R.A.F. Hospital, Halton, on appointment to a Perm. Comn. as Medical Quartermaster, 8/9.

Stores Branch.—Squadron Leader P. M. Brambleby, to H.Q., A.D.G.B., Uxbridge, 15/9.

Flight Lieutenant L. H. Vernon, to R.A.F. Training Base, Leuchars, 15/9.

Flying Officers H. J. Young, M.B.E., to H.Q., Wessex Bombing Area, Andover, 8/9. W. T. Lewis, to No. 604 Sqdn., Hendon, 8/9. A. H. E. Frost, to R.A.F. Depot, Uxbridge, 1/9. C. J. Cousins, to No. 2 A.C. Co., Palestine, 13/9.

Accountant Branch.—Squadron Leader I. L. Wincer, to R.A.F. Depot, Abukir, 13/9.

Flight Lieutenant W. R. Donkin, to No. 14 Sqdn., Palestine, 13/9.

Chaplains' Branch.—The Rev. M. H. Edwards, O.B.E., to H.Q., 'Iraq Command, 13/9.

The Belgian Visit.

The visit by a Flight of Belgian Military aeroplanes to R.A.F. Stations which should have taken place from Sept. 23 to 27 has been indefinitely postponed. The Flight attempted to leave Brussels on Sept. 22, but turned back because of bad weather.

No. 2 (Army Co-operation) Squadron, R.A.F., went halfway across the Channel to escort them to Manston, but returned on learning that the visit had been postponed.

The Defence of Kurram.

The appreciation by the Government of India of the service rendered by all concerned in the recent operations in the defence of Kurram is expressed in a communiqué which has been issued by the Foreign and Political Department containing the following message to Mr. Pears, the Chief Commissioner for the Frontier Province:—

His Excellency the Viceroy and the Government of India have watched with sympathy and admiration the recent progress of events in the Kurram Valley, and desire to express their profound satisfaction at the removal of the menace by which its security has been threatened. They are sensible of their obligations to yourself for your general supervision and control; to the General Officer Commanding Kohat District and all ranks of the regular forces serving under him for their timely support to the R.A.F. for their untiring vigilance and for most valuable information obtained by their reconnaissances; to the Political Agent and all the political staff of the Agency; to the Commandant and all ranks of the Militia; and, last but by no means least, to the inhabitants of the valley for the manner in which one and all have performed whatever duties were required of them in face of difficulty and danger; and an additional word of commendation must be reserved for the village *chighas* [levies], whose gallant co-operation with the forces of the Crown has been specially deserving of praise.

In order to mark his Government's appreciation of these services his Excellency the Viceroy has been pleased to announce the remission of one year's revenue to the inhabitants of the Kurram Valley, a gratuity of one month's pay to all ranks of the Kurram Militia, and other rewards on a liberal scale to all who have played their part in the defence of the valley. Family and wound pensions will be granted alike to the *personnel* of the Militia and of the village *chighas* who have been wounded or lost their lives.

The Staff College.

The name of the following officer should be added to the list of those officers selected to attend the ninth course at the R.A.F. Staff College, beginning in January, 1931:—Flt. Lt. G. G. Banting.

Army Co-operation.

During the three months ending Aug. 31, 1930, the Army Co-operation Squadrons of the R.A.F. have been engaged on a programme of collective training and co-operation with the various Army Commands.

Officers of these Squadrons have attended Army Staff Exercises and a number of Army Officers, Non-commissioned Officers and Men have been given air experience flights at the Squadrons' aerodromes.

Air Co-operation, involving close reconnaissance, photography, and low flying attacks, has been provided at the majority of Battalion, Brigade, and Divisional training exercises. Aircraft were also provided to co-operate with the Artillery at the Royal Artillery Practice Camps at Okehampton, Larkhill, Tilshead, Redesdale, and Buddon and many live shoots were made with air observation.

During the annual Officers' Training Corps camps, aircraft co-operated in various schemes and field days in some of which over 3,000 Cadets took part on each side. Demonstrations of all types of aircraft were arranged and a total of over 1,500 Cadets were given flights. In addition to the work of this kind done by the Squadrons, a special Flight was formed temporarily at Netheravon to co-operate with the camps at Tidworth.

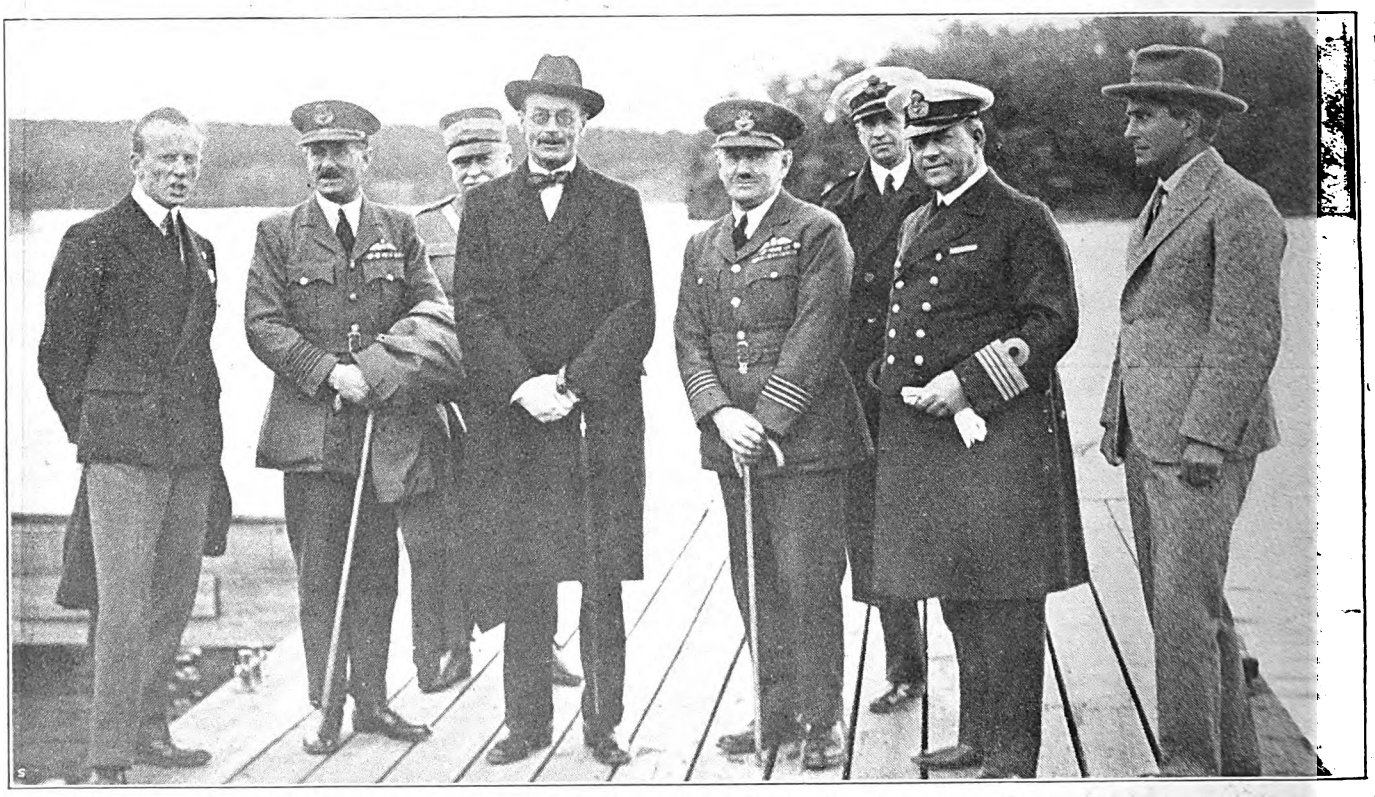
A New Army Co-operation Machine.

The Aeroplane understands that a number of highly successful tests have recently been made at a Royal Air Force Station in adapting the Hawker Hart to the work of Army Co-operation. The information is that this machine, because of its unusual range of speed, is likely to make a valuable Army Co-operation machine. The Hart is at present the equipment of No. 33 (Bomber) Squadron.

The Fleet Air Arm.

The present position and recent movements of the Aircraft Carriers of the Fleet is as follows:—

H.M.S. *Hermes*: Air Units in H.M.S. *Hermes* have been doing normal routine flying in conjunction with other ships on the China Station. H.M.S. *Hermes* sailed from Hong Kong for the United Kingdom on Aug. 7 for the purpose of



THE BALTIC CRUISE.—The Supermarine Southampton flying-boats of No. 201 Squadron, R.A.F., cruising in the Baltic, arrived at Stockholm on Sept. 8 and left again on Sept. 12. The group shows (left to right) Col. the Master of Sempill, who had flown to the meeting-place in his Puss-Moth with the British Minister as passenger; Group Capt. Gossage, British Air Attaché in Stockholm and Berlin; Colonel Mossberg, the Swedish Air Attaché in London; Sir Howard Wm. Kennard, K.C.M.G., C.V.O., British Minister in Stockholm; Group Capt. Nanson; Capt. Lundstrom; Commodore Lübeck; and Director von Hofsten, Chief of the Air Port.

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recommissioning, and should arrive on Sept. 25. The R.A.F. Units in this Aircraft-Carrier are No. 403 (Fleet Fighter) Flight, and No. 440 (Fleet Spotter Reconnaissance) Flight. The Senior Air Force Officer is Wing Cdr. A. H. S. Steele-Perkins, O.B.E.

H.M.S. *Furious*: Air Units in H.M.S. *Furious* were engaged in deck-landing training during the month of June. H.M.S. *Furious* is in hand for retubing at Devonport.

H.M.S. *Courageous*: This Aircraft-carrier is undergoing retubing at Devonport.

H.M.S. *Glorious*: This Aircraft-carrier sailed for Malta on June 24 and is now on duty with the Mediterranean Fleet.

H.M.S. *Argus*: Now in Reserve.

Flying Training.

During the three months ending Aug. 31, 1930, the following completed courses at Flying Training Units:—

CENTRAL FLYING SCHOOL (*Flying Instructors' Course*): 19 R.A.F. Officers, 2 R.A.F. Other Ranks, and 2 Foreign Officers.

No. 1 FLYING TRAINING SCHOOL (*Ab Initio* Course): 23 R.A.F. Officers, 9 R.A.F. Other Ranks.

No. 2 FLYING TRAINING SCHOOL (*Ab Initio* Course): 25 R.A.F. Officers, 7 R.A.F. Other Ranks.

No. 3 FLYING TRAINING SCHOOL (*Ab Initio* Course): 2 R.A.F. Officers.

No. 4 FLYING TRAINING SCHOOL (*Ab Initio* Course): 11 R.A.F. Officers, 21 R.A.F. Other Ranks, and 3 Foreign Officers.

R.A.F. COLLEGE (*Ab Initio* Course): 21 R.A.F. Cadets.

Special Assessments.

The following officers and airmen have been awarded special assessments as shown on completion of a course of *ab initio* flying training at No. 2 Flying Training School:—

Distinguished Passes:—Pilot Officers C. A. Ball, W. E. Grant, A. H. Houghton, J. T. Mynors and G. N. Warrington.

No. 363354 Sjt. Alexander, R.; No. 363843 Sjt. Bolland, C. J. E.; No. 363713 Sjt. Ridout, C. F. C.; No. 363135 A/Sjt. Hudson, H. V.

Notations have been made in the official records of the officers and airmen.

Catapult Experiments.

An Air Ministry Order states that catapult experiments are occasionally being made from a position 50 yards on the west side of the airship shed at Farnborough, and that the following procedure will be adopted when catapulting is taking place:—

(1) About ten minutes before either an aircraft is catapulted into the air, or a loaded truck along the ground, a large red flag will be placed in a conspicuous position on the brow south of the catapult where it can easily be seen from the air.

(2) When a loaded truck is being catapulted, the truck will carry a large red flag.

The catapult shoots its object in a southerly direction.

[According to a well-based rumour the catapult also occasionally shoots its object in a vertical direction. There is an entertaining story drifting around to the effect that an ancient Supermarine Seagull amphibian, from which the engine had been removed, was being catapulted experimentally on what was supposed to be a compressed air catapult when, unfortunately, the compression become so great that the lubricating oil in the cylinder went off bang like the charge in a Diesel engine and shot the machine at least 100 feet into the air, when it was only intended to trickle off the end of the catapult and roll along the ground. Mathematical calculations, as accurate as slide-rules can make them, show that instead of an acceleration of about twice that of Gravity the acceleration in this instance reached about 7 G. The really remarkable fact (alleged) is that the inmate of the machine not only survived the impact of 7 G., which is supposed to be impossible, but in the course of his emotional flight was able to stand up in the bow of the boat, like a cleryman in a pulpit, and, as Uncle Remus would say, sagacuate which way he was going to fall. To his own surprise and everybody else's he was still in one piece when excavated from the wreck and a day or so afterwards was little the worse for the experience. But how typical of Farnborough.—C. G. G.]

A Tattoo at Halton.

A Tattoo and display of illuminated flying will be given by the Royal Air Force, Halton, on Thursday, Sept. 25, and Saturday, Sept. 27, from 18.30 hours to 20.00 hours. The programme will include displays of physical training and a display by Boy Scouts, fireworks, massed drum and fife bands, massed trumpet and pipers, and a torchlight display. Admission is 1s. 6d. and seats are 3s. 6d. and 5s. 6d. The public car park is 2s. and a special car park to view the Tattoo is 10s. Tickets may be had from Command Headquarters, Halton, Bucks.

In the Tail Gun-pit.

The following is contributed by a passenger:—

My non-flying status was acutely brought home to me when trying to look unconcerned about my parachute. All dignity flew to the winds when I was ignominiously bundled into the tail of the Vickers Virginia. My nervous system had suffered somewhat as the result of various remarks made by R.A.F. officers about the uncomfortable results brought about by sitting in the tail: the fact that many a hardened pilot had succumbed was offered as a Parthian shot as we bumped off into the wind. At first the sensation was delightful, and after a few minutes' consideration I stood up and looked about me. Far below us lay the Kentish Lido, with its miniature railway looking exactly like a very realistic model.

Then to our right I spotted what I correctly guessed to be an Avro. It was coming quickly towards us, and was soon sitting above and behind our tail. Our pilot had also spotted it, for suddenly we went into an almost vertical bank and I was thrown violently against the side.

Then over we went on the other wing, down went the nose, up shot the tail, and I felt the pressure of an invisible hand pushing my head (and tummy) into the cockpit.

More lurching, swift climbs, and sudden dives left me wondering when Nature would prove too strong for me. Finally we swooped down to earth, our wheels skimmed the

TRUMPETERS.—Aircraft Apprentices at the R.A.F. School of Technical Training, Halton, practising for their Tattoo, which will be held on Sept. 25 and 27. One of the new barrack buildings is in the background.

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grass, and with a sudden roar we shot up over the buildings of the aerodrome to land correctly into the wind.

But the biggest thrill of all was going up in the pilot's cockpit and steering the big bomber where I wished while the pilot nonchalantly attended to his manicure, looking up occasionally to point out the correct course.

Under his direction I brought the 'plane near the aerodrome, and then he yelled through the voice tube:—"Would you like to land her?" I nodded, and just managed not to pull the nose too far up. As the pilot was taxying out to let me have another shot, someone, with the best of intentions of course, signalled him to drop his passenger. I swore very softly.—J. A. O.

AN AUSTRALIAN CHANGE.

Owing to cutting down of expenditure all round, certain important changes are being made in the Australian Air Force. Among these is the closing of the office which has been occupied for the past three years by Flt. Lt. C. J. Harman, R.A.A.F., who has been in charge of the various dealings in aircraft and aircraft material between this country and the Australian Air Force.

In these three years Flt. Lt. Harman has become very well and favourably known to everybody in the British Aircraft Industry. And one gathers that his intention is to devote himself in future to the business side of aviation with a view to expanding the sales of British aircraft and material overseas.

During the War 1914-18 Flt. Lt. Harman served in the Middle-East, and those who served with No. 1 Australian Squadron, and later with other Australian Squadrons in that area will remember the excellent work which he did in charge of machine-guns, which he developed from a state of extreme unreliability to a high pitch of efficiency. Before the War he had considerable engineering and business experience, and consequently his services in developing the business of the British Aircraft Industry in our Overseas Dominions and Overseas, should soon be in considerable demand.—C. G. G.

SMOKE DANGER TO FLYING.

In view of the rapid increase in the number of municipal and other aerodromes close to cities and large towns the Air Ministry is investigating the question of visibility in industrial areas. Attention is being paid to the aggravation of the problem by the emission of smoke, particularly during misty and foggy weather.

So that all possible information which will make for the safety of aircraft may be got, Mr. M. G. Bennett and Mr. F. Entwistle of the Meteorological Department of the Air Ministry will initiate a discussion on atmospheric pollution at the Annual Conference of the National Smoke Abatement Society, which is to open at Leicester on Friday, Sept. 26.

WORSE AND WORSE.

[*Parachuting*. Charles Dixon. 34 Illustrations. 216 pp. Sampson Low, Marston and Co. Ltd. 12s. 6d.]

Only a few weeks ago the author of this book completed a book on parachutes, and we have barely recovered from this before he thrusts another one under our noses. We would have preferred that he had not done so, for the first of these books, while bad, was preferable to the one under immediate notice. Mr. Dixon who, as he himself tells us, was formerly an observer in the Royal Naval Air Service and in the Royal Air Force, has apparently decided that *Parachuting* shall be a "popular" work, and as the term is, unhappily, now generally applied to books which are ephemeral and badly written, he has succeeded admirably in his ambition.

First of all he gives us some account of the early history of parachutes, which is tolerably accurate, but very badly written. One quotation to show this defect will be sufficient:—"The silk used in modern parachutes has a high degree of porosity, that is, it is porous, and all the time it descends air pressure penetrates through it as well as in the passage through the vent."

After this Mr. Dixon proceeds to tell us how Mr. Irvin (or, as he prefers to call him, "Ski-Hi Irvin") was drawn into the parachute business, and then follow a number of accounts of how the parachute has saved the lives of pilots, both in this country and in the United States of America. These stories of Mr. Dixon's bear striking resemblance to those given in Mr. Charles J. V. Murphy's *Parachute*, to which no acknowledgment seems to have been made.

The reviewer does not know Mr. Dixon, but believes that he is an Englishman; nevertheless, he has filled the pages of his book with Americanisms and with the crudest of *clichés*. The volume adds little or nothing to our knowledge, bears ample evidence of an entire lack of care in its preparation, and is one of the worst-written books which have been published on aeronautics. The illustrations, though often interesting, are very badly reproduced.—S. G.

AN INTRODUCTION FOR THE UNINITIATED

[*Skyways. A Book on Modern Aeronautics*. General William Mitchell. 76 Illustrations. 314 pp. Index. Ernest Benn. 21s., and from THE AEROPLANE Book Dept.]

The student of aviation may remember that some years ago General William Mitchell, U.S. Army (retd.), published an interesting little book entitled *Aerial Defence*, in which he gave expression to his views on the future of the air weapon, and also gave a vivid account of the now famous bombing trials made against some warships of the former Imperial German Navy. He has now written a popular work on aviation which resembles closely many similar books published in the United States of America, but, by virtue of the author's experience, is certain to command attention.

To those who already have a working knowledge of aviation the book will not bring much which is new, but it will be very useful to that large class of people who are interested in aviation, and, although not wishing to be bored with masses of technical detail, nevertheless are desirous of reading a book by one who is an accepted authority.

The book ranges over a wide field dealing with, for example, "Engines," "Learning to Fly," "Kind of Men to Make into Pilots," "Airships," "A Glance at World Aeronautics," "Military Aviation," "Aviation of the Future," and so forth. The book is not by any means free from errors. For instance, General Mitchell tells us that balloons were used during the Siege of Paris in 1789, a statement which he will have some difficulty in confirming,—but those of us who know the General understand that his generous and expansive nature does not like being trammelled by detail. His active mind has merely mingled the French Revolutionary War of 1789 with the Siege of Paris in 1870.

In his chapter on "Military Aviation," he is not always quite happy, for example, the reviewer can imagine that there are many officers who were at one time in the Royal Naval Air Service who will hardly agree with the statement that "when the German aeroplanes raided England, the Army air service would chase them to the shores of the sea, at which point they would have to turn around and go back. The Navy air service was then supposed to take up the pursuit, but they were never there."

No book is ever perfect, and it would be easy to pick holes in this particular one, but it should serve well the purpose for which it is intended. The illustrations are uniformly good and most interesting.—S. G.

The Very Latest

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CONTACT.
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Another book about the War Birds. 7/9

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SKYWAYS.
A book on Modern Aeronautics, by General William Mitchell, U.S. Army (retired), the Author of "Aerial Defence." 21/6

THE BROAD SKYWAY
A mass of information for all those who want to take to Civil Flying. 2/9

From the Aeroplane Book Department,
CANNON HOUSE, PILGRIM STREET, E.C.4.

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HIGH SPEED TRAVEL DE LUXE

Court and Society:

"Mr. and Mrs. Blank left London for the Continent this morning in their Puss Moth. They will lunch in Paris, where Mr. Blank has business to transact, and later fly down to Nice to witness the last night of the Carnival. After a short stay on the Riviera, a tour of the European capitals is planned, during which Rome, Belgrade, Constantinople and Athens will be visited, returning by Vienna, Berlin and Brussels. It is understood that Mr. and Mrs. Blank will be away from London for a fortnight."

THE DE HAVILLAND AIRCRAFT Co., Ltd.
Stag Lane Aerodrome, Edgware, Middlesex

PUSS MOTH

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AERONAUTICAL ENGINEERING

SUPPLEMENT TO "THE AEROPLANE"

THE VICKERS VIASTRA.

THE LATEST VICKERS PRODUCT.—A side view of the Vickers Viastra (three Armstrong Siddeley Lynx engines) 12-seater all-metal high-wing monoplane.

For a long time THE AEROPLANE has been as a voice crying in the wilderness and preaching that there was a big market in the Dominions Overseas in foreign countries generally for commercial aeroplanes of the right type. Last April this paper was able to announce that some interesting new machines of this kind were being produced by Vickers (Aviation) Ltd. On June 25 we were able to augment the information and to publish some drawings. At the same time was published the news that two Viastras, as these machines were to be called, had been ordered by West Australian Airways Ltd.

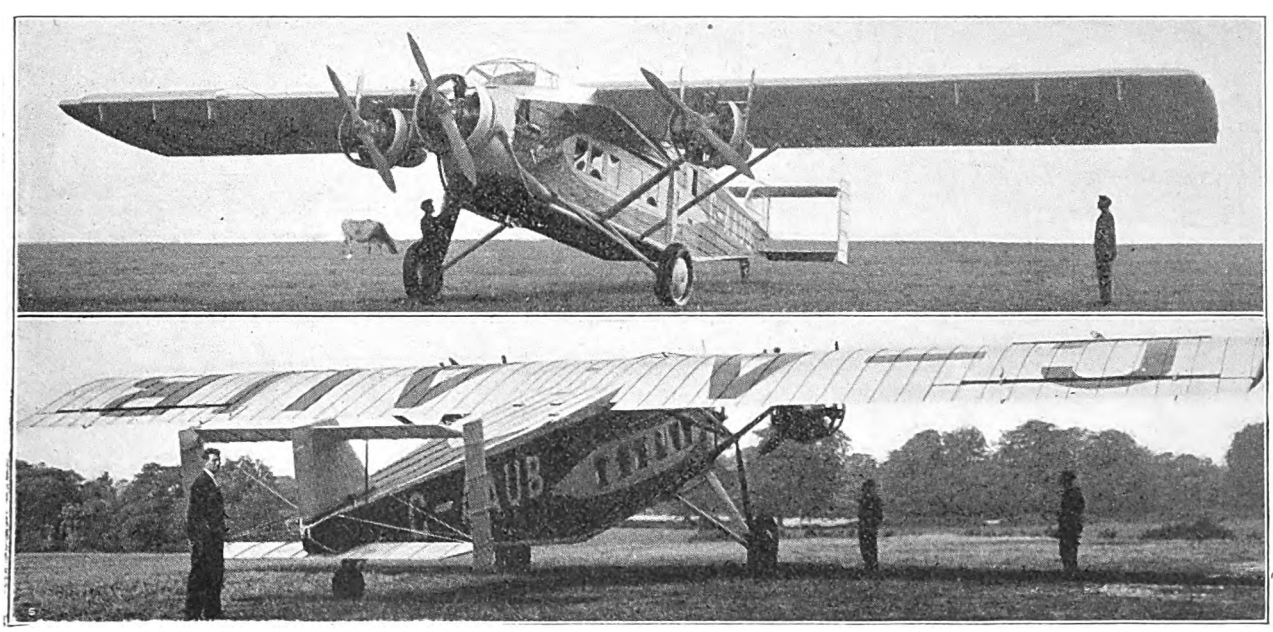
The Viastra can be had with a variety of power-plants. At the moment four are in various stages of construction at the Supermarine Works at Woolston. The first to be completed is a model with three Armstrong Siddeley Lynxes. This machine has begun its flying trials. The next two will have twin Jupiter engines, and the fourth is to have a single Jupiter engine.

The Viastra is so unlike any machine which has been built in this country before that one must let all pre-conceived ideas go by the board. The machine is constructed entirely of metal. Duralumin is used with steel tubes and steel fittings for the highly loaded parts. The duralumin covering takes part of the stresses on all the flying and control surfaces as well as in the fuselage.

The interior of the cabin has been cunningly arranged to make use of the internal metal panelling for decoration and the like. There are no fabric hangings or cloth partitions. The exceptions to the use of metal are the fireproofed window curtains and netting in the baggage racks, and the upholstery of the chairs.

The Viastra has been designed for quantity-production, and so successfully has this been done, that it sells at a price which is below any of its competing types. So at last the World has a British machine built to British standards of airworthiness with British workmanship and a selling price that can under-cut foreign-built aircraft.

The Viastra is a general-purpose cabin machine which can carry twelve passengers when the maximum engine-power is fitted. Alternatively the big rectangular cabin-space can be used for freight. The capacity of the empty cabin and lavatory is 640 cubic feet.



THE VICKERS VIASTRA (THREE LYNXES).—Three-quarter front and rear views of the latest Vickers commercial monoplane.

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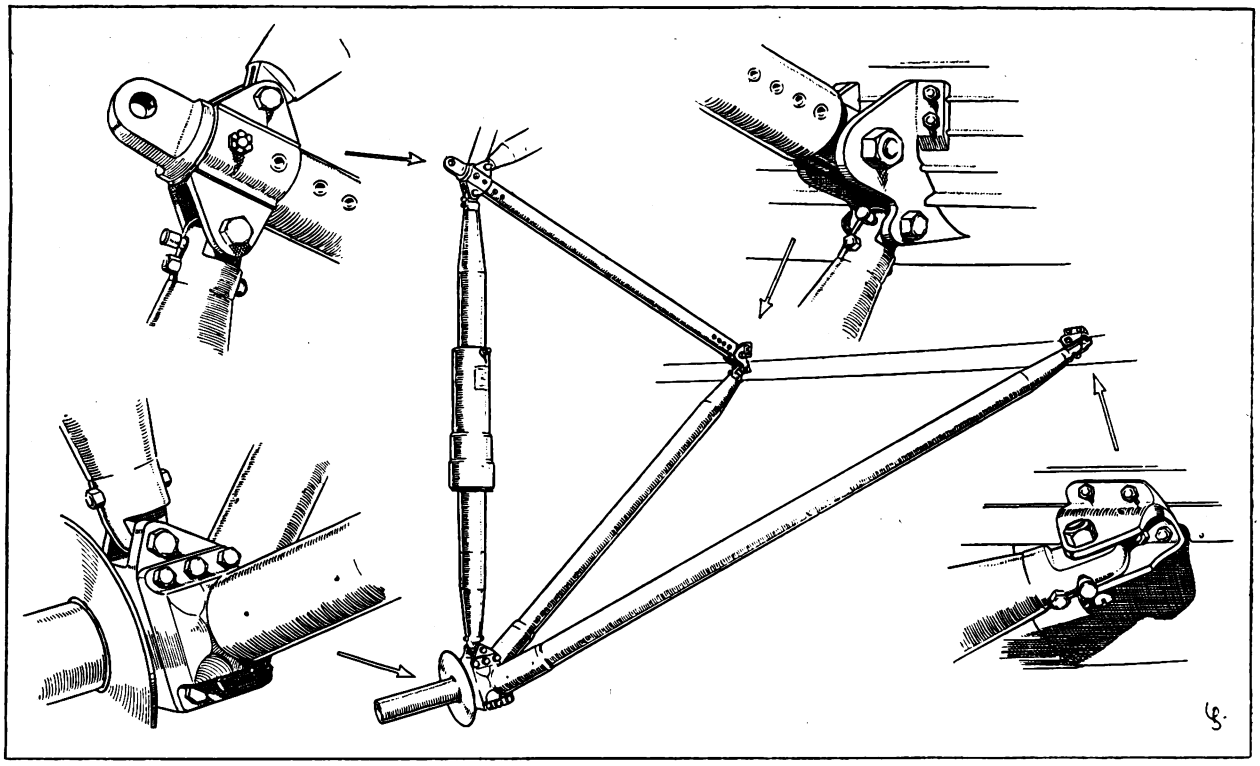


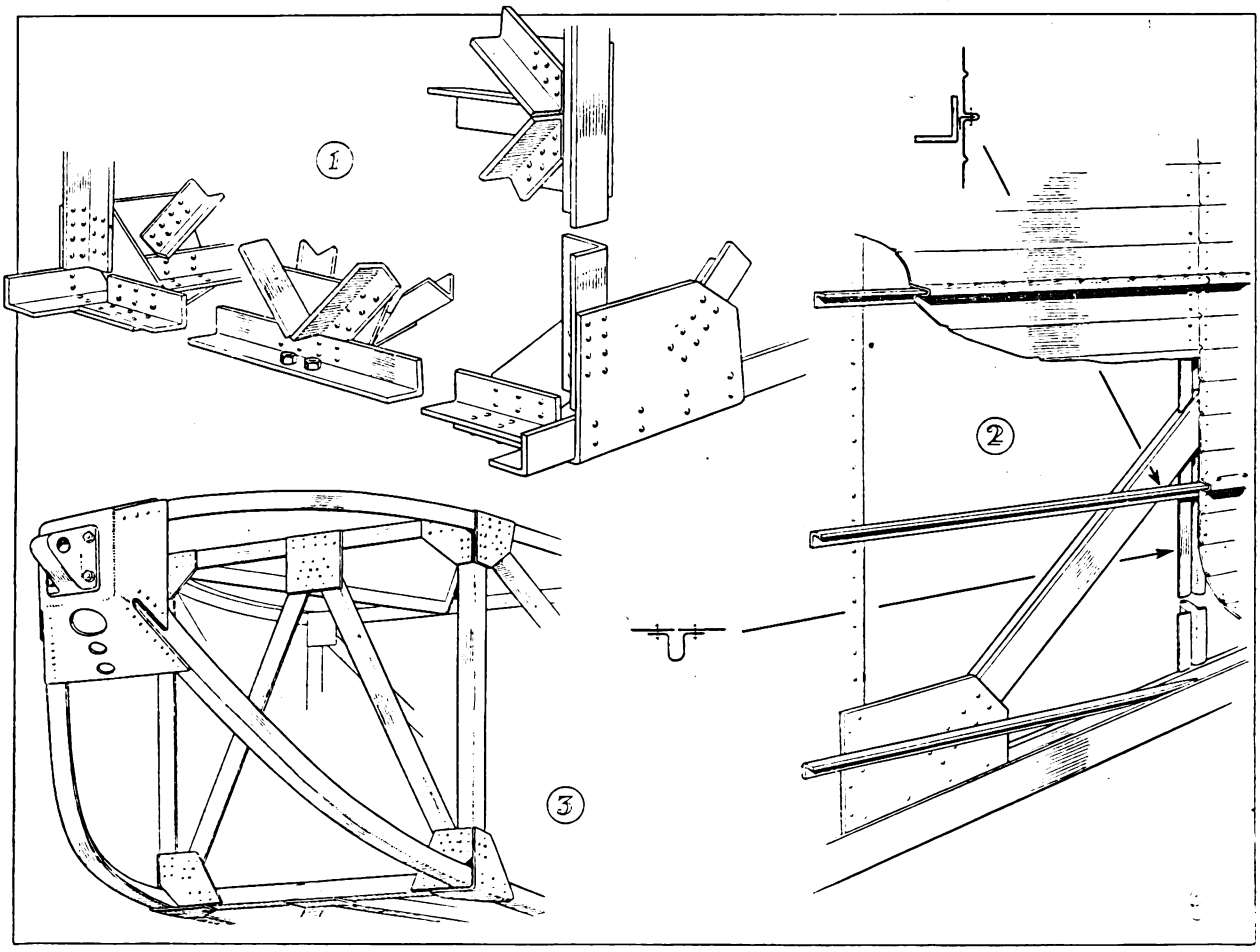
UNDERCARRIAGE DETAILS.—The general arrangement of one half of the undercarriage, with enlarged sketches of the various fittings.

together through their upturned edges, between which are sandwiched the flanges of the ribs, and are covered with a capping-strip and rivetted together. The covering strips are reinforced laterally by small stringers of open-channel section.

The ailerons, which are of the Frise type, are interchangeable, which is important from the operating point of view and makes fewer spares necessary. The slots are made from sheet duralumin, and are carried on tubular levers which are housed in cases which project from the wing.

The fuselage, which is rectangular in section, has been made in two parts, to make ground-transport easier and cheaper. The sides of the front portion from the pilots' cockpit to aft of the cabin are parallel but aft of the joint these taper rapidly to a vertical edge at the sternpost.

The method of construction is straightforward. A number of main transverse frames are linked together by four lengths of angle-metal along the four corners. There are other diagonal and bracing members. Between the main



FUSELAGE DETAILS.—1.—Four typical fuselage fittings which are of the simple flat-plate type. 2.—The method of attaching the fuselage covering. 3.—The tail-end of the fuselage.

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a tracking rudder for overcoming any load on the outer rudders, due to variation in engine speed or in case any one engine is not being used. The outer two are worked from the rudder bar.

Like the upper plane or elevator, the rudders have an adjustable loading mechanism. This is a well-known Vickers fitment on their big machines, and works quite independently of the setting machanisms for the middle rudder or adjustable tailplane.

The whole of the tail unit is built of metal on the same principle as the rest of the machine. The bays are cross-braced with streamline wires.

The undercarriage is of the divided-axle type, with wheel-brakes, and there is a tracking tail-wheel. The axles are in the vertical plane of the front spar, with radius-rods in compression bracing them forward. The vertical leg, which includes the Vickers oleo shock-absorber, is attached to the strong-point of the front wing-bracing strut which has already been described.

The wheel-brakes, of the Vickers hydraulic type, are worked in conjunction with the rudder-bar. These brakes are of the internal expanding type with two shoes which are forced out by a hydraulic ram. The pressure to this is supplied through a pipe-line from the cock-pit where the pressure is got by pulling up a hand-lever which lies between the two seats. When the brakes have been pulled on one or other may be released through a by-pass arrangement which is linked with the rudders bars. This by-pass allows for the transference of all the pressure to either brake or to both equally.

The tail-wheel, which has a pneumatic tyre, is housed in a welded tube structure, and has a Vickers oleo shock-absorber. A damping device prevents it from swinging too violently.

One of the particular features of the Viastra as already mentioned is the variety of power-plants with which it can be used. The machine can be had with Jupiter, Panther (Jaguar Major), Jaguar, Hornet, Wasp, Cyclone, Whirlwind, Lynx and Mongoose engines. The engine-mountings have been so arranged that they suit all types.

When the machine has three engines, as has the first Viastra, the nacelles for the wing-engines are fixed to the wing-bracing struts (only the front ones) and hung on steel tubes from the leading edge and the front spar. The apex of the steel tube triangles which form the essential basis of the nacelles, butts against the wing-bracing strut. The whole nacelle is faired off into an egg-shape and does not extend to the rear strut.

These nacelles carry the oil-tanks, which like all the tanks in the machine are of the patent Vickers-Wallis type. These are made in two parts and only need to have one universal part kept in stock as a spare. This part will do for either end.

The exhausts of the wing-engines are taken over the leading edge of the wings, and the exhausts of the centre engine are brought down beneath the fuselage. This ensures that the fumes are all taken where they can do the least harm. The noise is also thereby decreased. The fuel tanks, of 200 gallons (908 litres) capacity, are in the wings between the spars on each side. These are also of the Vickers-Wallis type and, being made of aluminium, are extremely light. They feed by gravity to the engines.

The pilots' cockpit is well forward of the wings with an excellent view forward and down past the middle engine. The cockpit is completely enclosed, with sliding roof and side lights so that the pilots can look back over the tail or straight down past the fuselage.

Dual control is standard, with adjustable rudders bars. These can be so screwed towards or away from their axis that any length of leg can be accommodated. The elevator and aileron control is of the wheel and column type.

The flying controls, with the exception of those for the ailerons which are inside the wings, run along the fuselage. This is not particularly graceful but is accessible for maintenance.

The throttle controls are placed midway between the pilots, with distinctively coloured knobs to indicate port, starboard and middle engine. The wheels for setting the tail-trimming gear and tracking rudder are close to the left-hand pilot's seat. The lever for the wheel-brakes is between the two seats.

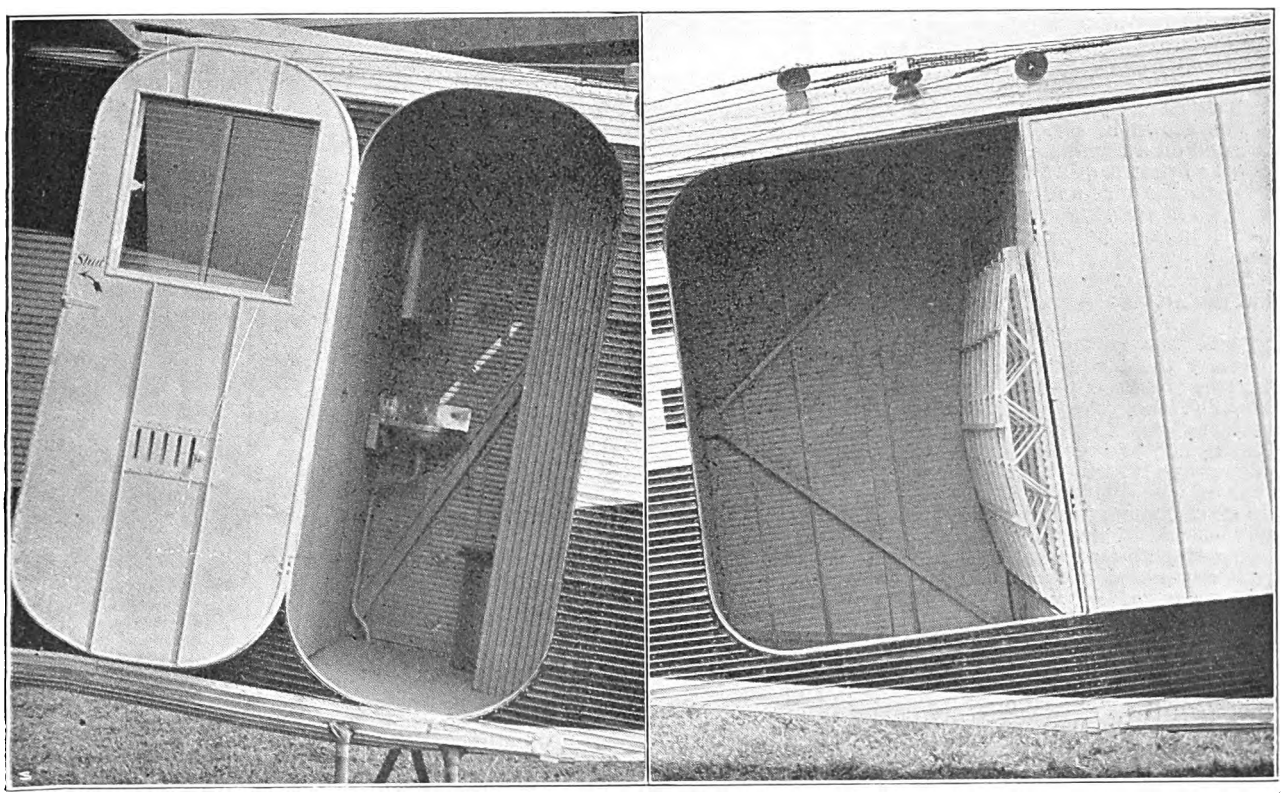
The instrument-board is lit from beneath by concealed lighting on the lines of the best motor-car practice, and extensive tests have proved that it does not in any way dazzle the pilot.

At the back of the cockpit are two folding doors through which one passes down four steps to the cabin, where one can *smoke*. This big roomy cabin is one of the most unconventional features of the Viastra. It is 20 ft. 3 in. long x 5 ft wide x 6 ft. 1 in. high.

It is panelled with metal, and the Titanine lacquer scheme is so attractive that the novelty results in added charm.

The metal panels, which are like the outer covering panels, are screwed into place. Thus the inner skin can quickly be removed for inspection. Further the screws go home into the steel washers which have been squeezed into the duralumin angles.

Another ingenious and excellent idea which deserves to be made standard, with a suitable royalty to the originators, is the use of separate emergency exits for each passenger. Each passenger has a window to himself and these are glazed with Cellastoid. Each panel can be knocked right out with a sharp blow from the fist, which flicks out the spring clips and angles which normally hold the glazing firmly *in situ*.



VIASTRA DOORS.—On the left, the main door to the cabin with the inside cabin door shut to show the lavatory. On the right, the freight compartment, showing the special reinforced floor raised,—this is not, as might be imagined, a spare wing-tip.

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As well as the six windows each side, there are two lights in the roof. To cut down noise and prevent drumming small dampers or diamond-shaped wads of fabric are strategically placed on the inside of the outer skin.

Each passenger also has his own electric light which is directly controllable by himself. He also has a ventilator which he can set to meet his individual wants. A further luxury is the provision of a duct for heated air which runs along each side of the cabin. The exhausted air is withdrawn from the cabin through two ventilating devices in the roof near the back.

At the aft end of this cabin is a door which leads to the lavatory and to the outer door. When the cabin door is open it shuts off the lavatory, thus leaving the way to the outer door free. When the outer and the cabin doors are shut the full width of the fuselage is available for lavatory space. The main door only has sliding windows.

On the side of the fuselage opposite to the main door, that is the starboard side, are the hatches to the main luggage compartments where another 100 cubic feet of space are available. One compartment is immediately aft of the main entrance door, the other is forward under the pilots' seats.

A final point which marks the careful consideration which has been given to the whole design, is the provision of pads for lifting jacks on the lower side of the fuselage aft of the joint in the fuselage.

SPECIFICATION.

DIMENSIONS.—Span 70 ft. (21.33 m.), Chord 11 ft. 6 in. (3.505 m.), Aerofoil section R.A.F. 34, Length 48 ft. 6 in. (14.78 m.), Height overall 14 ft. 6 in. (4.42 m.), Wing area 745 sq ft. (69.21 sq. m.).

WEIGHTS AND LOADINGS.—Weight empty 7,678 lbs. (3,486 kgs.), Instruments 51 lbs. (23 kgs.), Crew (2) 360 lbs. (163 kgs.), Fuel (100 galls.) 760 lbs. (345 kgs.), Oil (9 galls.) 81 lbs. (37 kgs.), Pay load (passengers and luggage) 1,820 lbs. (826 kgs.), Loaded weight (for British C. of A.) 10,750 lbs. (4,880 kgs.), Wing loading 14.45 lbs./sq. ft. (70.5 kgs./sq. m.), Power loading (3 x 235 h.p.) 15.3 lbs./h.p. (6.94 kgs./h.p.).

PERFORMANCE.—Figures not yet available.

ROTARY THUMBS.

A. P. THURSTON, D.Sc.(Eng.),Lon., M.I.Mech.E., F.R.Ae.S., M.I.A.E., M.I.Ae.E.

There has recently been concluded at The Hague the Fifth International Congress of Aerial Navigation (*Vme Congrès International de la Navigation Aérienne*). A report of the social amenities of the Congress, written by Mr. Norman Macmillan, appeared in THE AEROPLANE for Sept. 17. A large number of papers were read in the Scientific and Technical Section, and among these was a paper on a New Method of Controlling the Flow of Air Adjacent to the Surface of an Aerofoil (The Thurston Rotor "Thumb" Control), by Dr. Thurston.

In this paper Dr. Thurston outlines his early work on "rider" planes and "alulas," and then summarises his latest discovery of the Rotary Thumbs. This later feature so caught the general attention that the usual salutation became "Thumbs Up." These Rotary Thumbs seem to promise much, and one can visualise quite clearly an aeroplane of normal appearance which has been so equipped with this device that in the event of a stall or engine-failure the machine would parachute slowly to earth with the Rotary Thumbs acting as Auto-Giros.

EARLY HISTORY.

The writer has already shown, so far back as November, 1914, that "rider" planes may be used immediately in front of the main plane for the purpose of controlling the flow of air adjacent to the surface of an aerofoil, and that such "rider" planes or "alulas" may be used for stability or control. The apparatus used in one set of these experiments was then referred to as a "rider" plane in front of the main aerofoil, as shown in Fig. 1. The main plane was mounted on a turntable in the side of the wind-tunnel so that it could be turned to any desired angle to the air, and was provided with outriggers for carrying "rider" planes at various chords in any position in front of the main plane.

The results of these experiments showed, first, that the lift on the main plane, at a given angle, could be increased by increasing the width of the gap between the "rider" and main planes, whatever the inclination of the "rider" plane may be between —10 deg. and +10 deg. Secondly, they showed that this increase is primarily due to change of pressure on the suction side of the main plane. Thirdly, the fact was shown that alteration of the angle of the "rider" plane alters the lift of the main plane in a similar way to that obtained by variation of the main plane alone.

Experiments also showed that the lift on the main plane at a given angle may be varied by moving the "rider" plane, whatever its inclination, in a plane transverse to the chord of the main plane.

These experiments support a proposition which was first enunciated by the writer, namely, that a "rider" plane or "rider" body, could be used to alter or "interfere" with the aerodynamic properties of another plane or body for various purposes, such as improving the stability, increasing control, amplifying the lift, reducing the resistance, securing relative motion there-between, etc.

It should be emphasised that these readings and results were obtained and published before the War 1914-18.

THE WAY OF THE BIRD.

The writer has also shown (in September 1928) that the "thumb" of a bird's wing is used by the bird to hold the air onto the top surface of the wing when it is at a large angle to the air, thereby preventing "departure" and "stalling."

Fig. 2 shows the wing of a Griffin Vulture from the underside. Attention is directed to the position of the "alula" and remicle as small planes on top of the leading edge of the main wing are called.

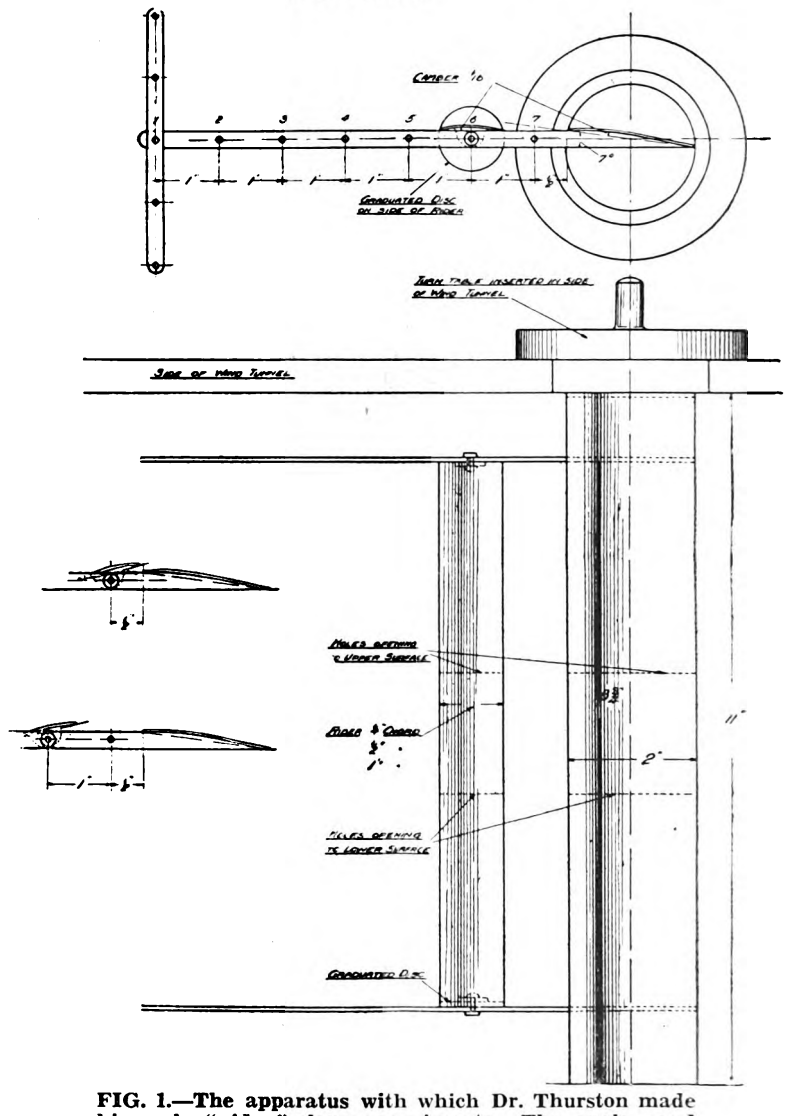

FIG. 1.—The apparatus with which Dr. Thurston made his early "rider"-plane experiments. The angle and position of the "rider" can be easily altered.

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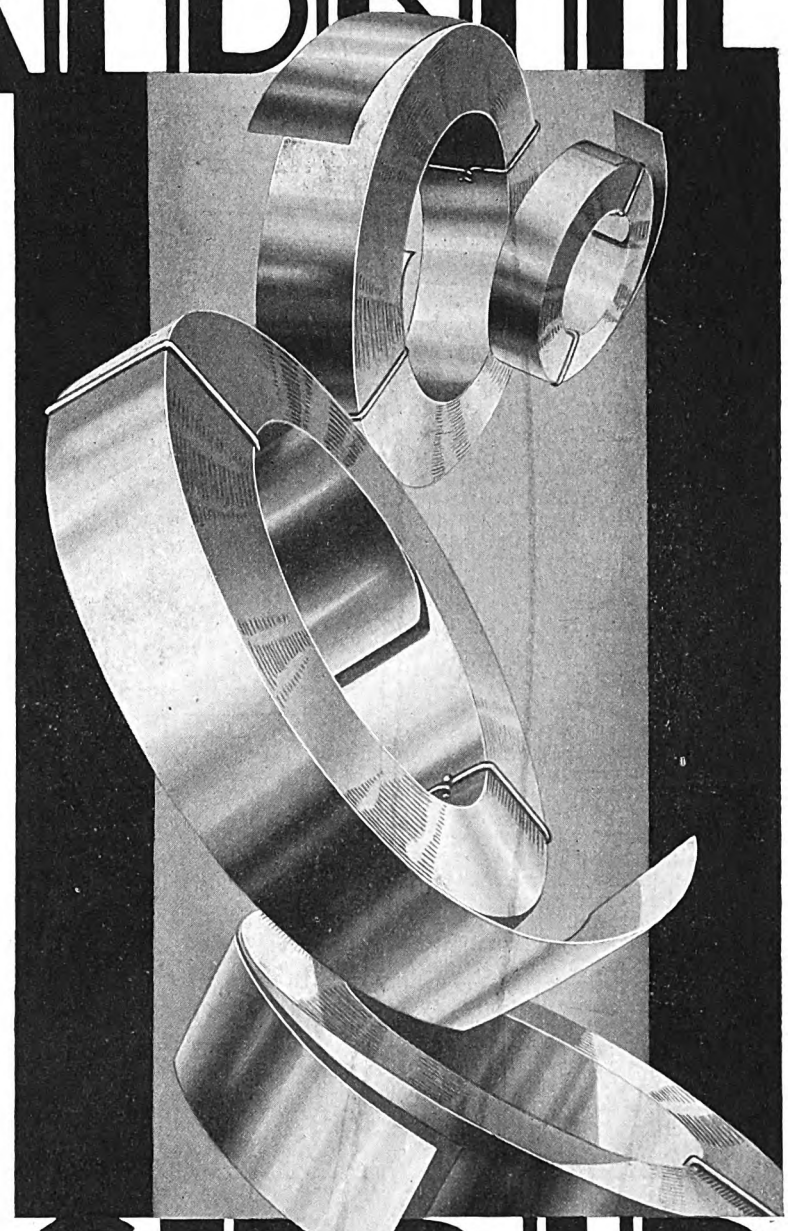
STAYBRITE



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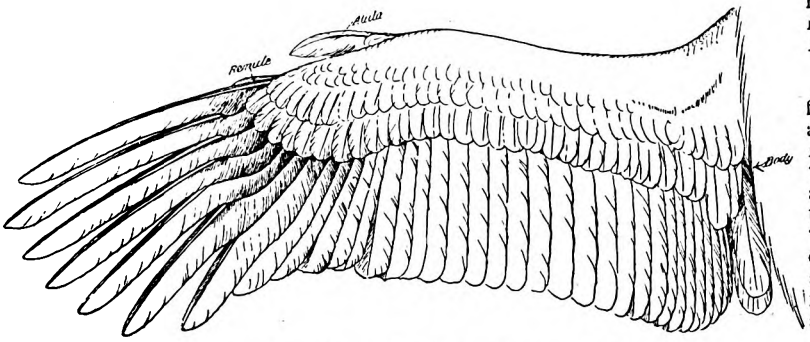

FIG. 2.—The wing of a Griffin Vulture. This shows clearly the position of the "Alula."

Fig. 3 shows two eagles (taken from the National Museum, Sweden) in an awkward position, and their "alulas" are thrust out so as to form gaps in the wings and act as "rider" planes.

[Dr. Thurston showed at The Hague a number of photographs to illustrate the fact that birds use their "alulas" or "thumbs" either singly or simultaneously for purposes of control and steering. The alula is also used on a turn to prevent the inner wing from stalling.]

APT CONTROL.

Fig. 5, taken from the writer's patent specification dated Dec. 14, 1920, shows a practical method of fitting a "rider" plane to an aeroplane so as to obtain an "alula" effect to prevent "stalling" and to obtain lateral control.

Figures 2a and 3a of this figure show a method of mounting the "alula." The inclination of a lever x may be controlled from the cockpit so that when the plane is "stalled" the "alula" effect may be at once upset, thus enabling the machine to be laterally controlled in the "stalled" position.

On the other hand, when the machine is flying at a normal angle it may be steered by increasing the negative inclination of the "rider" on one side, as shown in Fig. 3a, thereby increasing the resistance and decreasing the lift on that side, and giving a correct amount of rudder and banking for the turn.

Similarly, by decreasing the negative inclination of the "rider" plane on the other side, the resistance and the lift of that side, in certain conditions, may be respectively decreased and increased.

It may be remarked that these "rider" planes were found, as anyone would expect, to open automatically when the inclination of the main plane exceeded a certain amount.

[The writer then showed a slide which indicated the angle to which the "rider" plane will automatically open when the main plane is at various angles. The experiments, the results of which are depicted in Figure 4, were made in the works of the Bristol Aeroplane Co. Ltd. on Aug. 10, 1921.]

THURSTON ROTOR "THUMB" CONTROL.

The writer noticed that when pigeons take-off from the ground they sometimes make a rapid angular stroke with their "thumbs," approximately in the plane of the wing, that is, the "thumb" shoots out rapidly to a considerable angle with the front edge of the wing. In order to investigate whether the *motion* of the "thumb" had any effect apart from the *position* of the "thumb," a small plane or "rider," set at a negative angle to the main plane, was mounted so as to be capable of turning about an axis transverse to the main plane.

It was found that this small plane seated itself tightly against the top surface of the main plane, when the angle of incidence of the main plane was small, and lifted away from the surface and rotated at high speed when the angle was large. Under the latter conditions it gave a large lift and delayed "stalling."

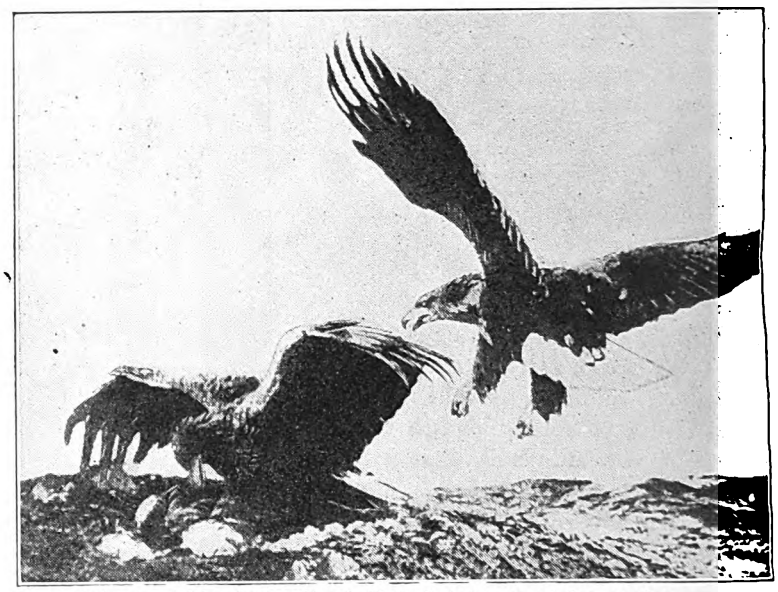

FIG. 3.—This shows the "Alula" being used by eagles when stalling in to land.

[Dr. Thurston then demonstrated with a model of the Thurston Rotor "Thumb" Control that if a "rider," shaped to the upper part of the nose of the plane, be mounted for rotation at one end with its axis of rotation inclined forwardly from the perpendicular to the chord of the plane, it may be made to "nest" upon the nose in normal flight. At the critical angle this rider may be arranged to swing out at an angle to the leading edge.]

He then went on:—

If, then, this movement of a "rider" in relation to the plane can be rendered continuous at an excessive, or what is normally a "stalling" angle for the plane, "stalling" can be prevented and the lift of the plane maintained. A convenient construction is that in which the "rider" is given a two-bladed helical formation by shaping its opposite blades to "nest" upon different zones of the upper surface of the nose parallel with the leading edge of the plane, and to mount it upon the plane, at a point intermediate between its ends, so as to turn about an axis inclined forwardly from the perpendicular to the chord of the plane.

Experimental investigations in a wind tunnel show that the "stalling" angle of the main plane can be increased with one disposi-

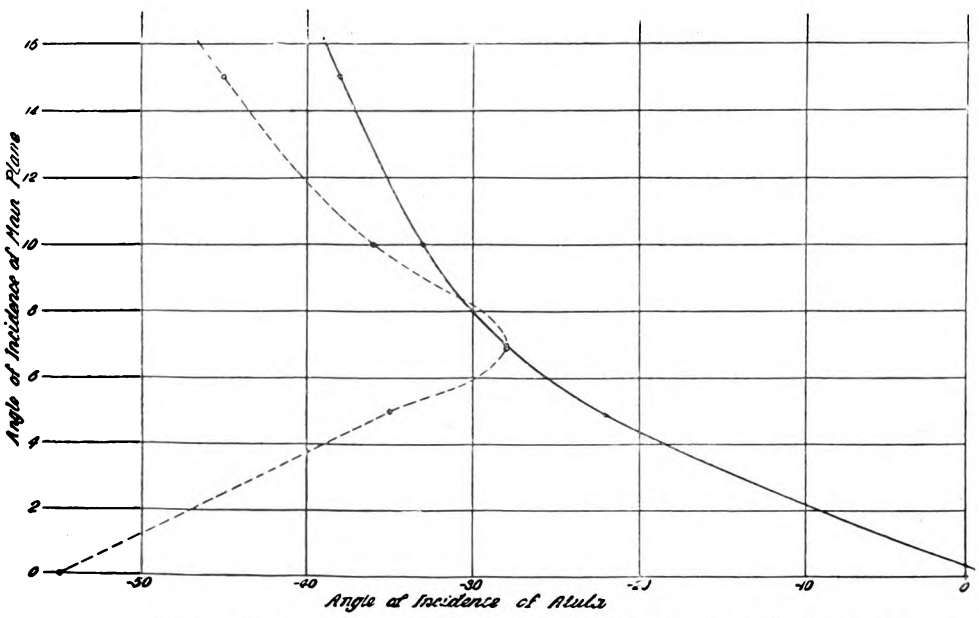

FIG. 4.—This graph shows the various angles to which the "rider"-plane will open when the main plane is at various angles of incidence.

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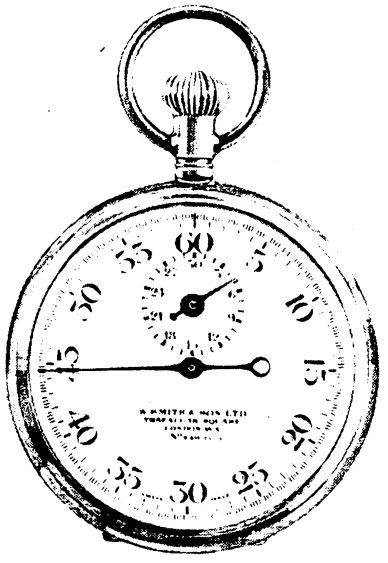
SMITH'S

Chronographs



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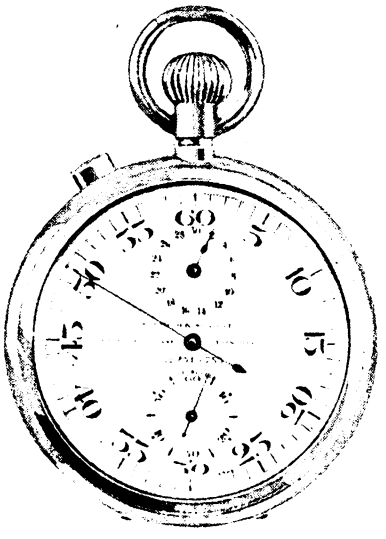

Fitted with Nickel Cases, new type 30 minute recording Chronograph. Non-magnetic, fully jewelled, lever movement, overcoil hairspring, compensation balance.

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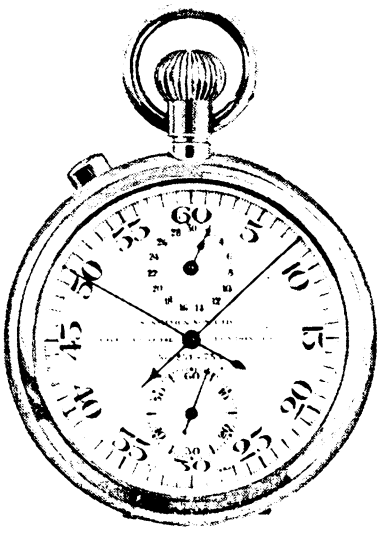

This type has Nickel Cases, new type 30 minute recorder, split second Chronograph. Non-magnetic, fully jewelled lever movement, overcoil hairspring, compensation balance,

Type No. 661. Price £5 : 5 : 0

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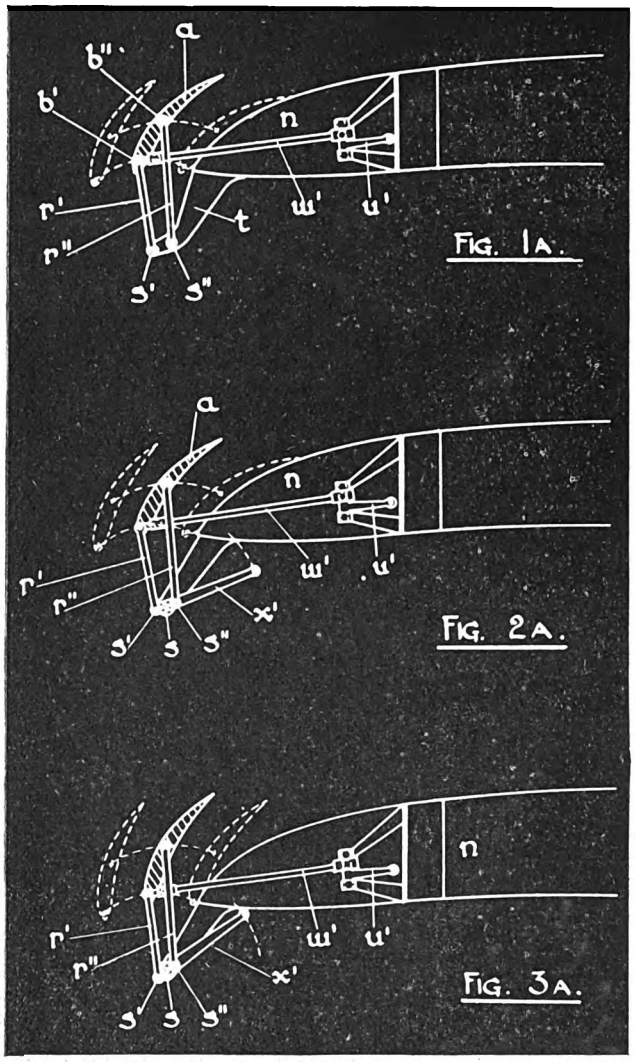


FIG. 5.—This is sheet 5 of Dr. Thurston's patent specification dated Dec. 14, 1920.

tion, to an angle of about 34 deg., and that the total lift can be considerably increased.

The area of the rotor plane of these experiments was about 1-30th of that of the main plane, but it increased the total lift about 30%.

It is considered that these experiments indicate that rotating "riders" or rotor "thumbs" may be used for the purpose of improving the lift, stability and control of aircraft, and that automatic rotating "riders" or rotor "thumbs" may be used to prevent "stalling" and to facilitate landing by making slow flying possible. The suggestion is ventured that the invention comprises the combination of aeroplane and autogiro with the best properties of both, minus their disadvantages.

THE CURTISS-BLEECKER HELICOPTER.

The Curtiss Aeroplane and Motor Co., of Long Island, N.Y., has developed a helicopter which is now awaiting test. It has been designed by Mr. Maitland B. Bleecker, and in general principle it consists of a series of four revolving wings which are mounted on a vertical structure above the deck of a fuselage or body.

Within the vertical structure is mounted horizontally a 425 h.p. Pratt and Whitney Wasp engine which drives by four shafts four four-bladed airscrews which are each located below and ahead of one of the rotating wings. There is no airscrew on the nose of the fuselage but the directional motion is expected to be got by inclination of the whole wing system.

Each wing is fitted with an auxiliary surface attached behind it by outriggers and by changing the incidence of the auxiliary surface, or "stabovator" as it has been named, the incidence of the vane is changed. By an ingenious mechanical control it is possible to actuate the vanes by a normally-operated control column.

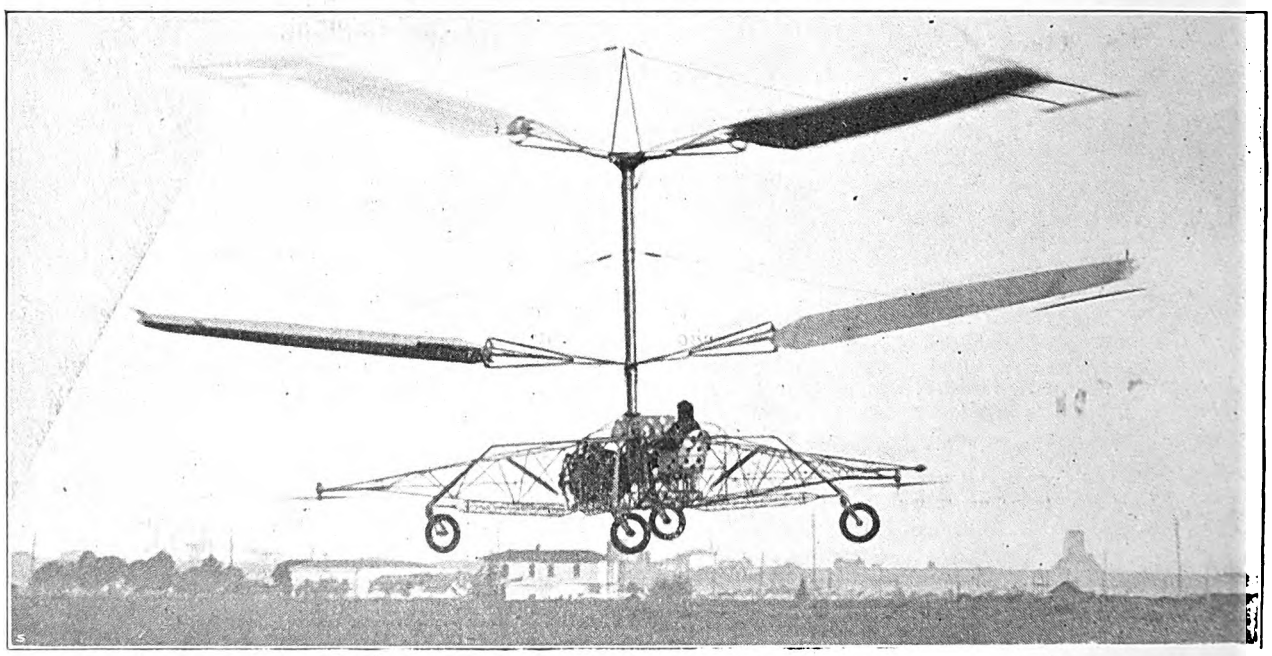
Normal control of the auxiliary surfaces is such that those momentarily at the sides of the body act as ailerons, and those at the front and rear as elevators, and the incidence of the vanes changes as the system rotates. An additional control makes it possible to move all "stabovators" in the same direction simultaneously.

The control, which is considered somewhat comparable to the rudder of a normal plane, is a surface at the back of the body which is hinged on a line parallel to the horizontal axis. This surface is controlled by rudder pedals.

Fuel and oil tanks are mounted in such a way that they turn with the rotating vane system. Electrical connections for the engine control are taken off the rotating system by a commutator arrangement and an ingenious system of gearing makes it possible for the pilot to have what amounts to a normal throttle control.

The system of gearing for the engine is such that the lay-shaft connecting the engine crank-shaft with the airscrew shaft turns at a speed relatively lower than either the engine or airscrew. The engine is cooled by means of a 32 in. fan mounted above the cylinders and working in conjunction with baffles for each cylinder.

The total weight of the Curtiss-Bleecker helicopter is 3,400 lbs., of which approximately 20 per cent. is useful load. The total area of the wings or vanes exclusive of "stabovators" is 322 sq. ft., and the area of the four "stabovators" is 50 sq. ft.



AN ITALIAN HELICOPTER.—The D'Ascanio Helicopter well off the aerodrome near Rome. This apparatus, with a 100 h.p. engine and 1½ hours' fuel, has got off the ground vertically in full and satisfactory control and has followed obediently tracks traced on the ground. The height was never more than 18 ft. and the maximum duration flight was 6 mins.

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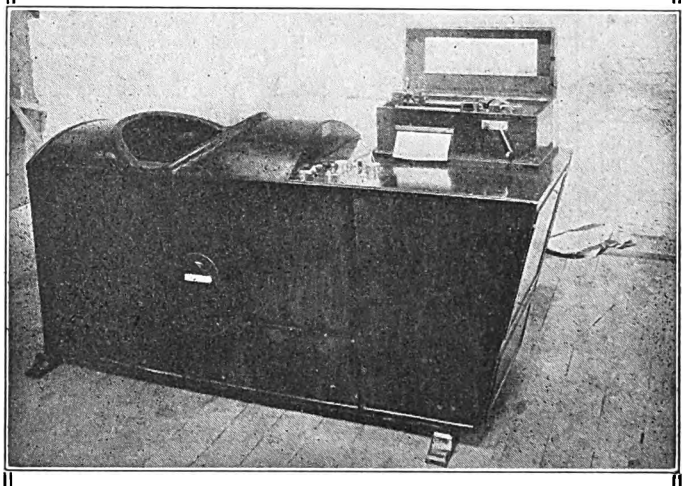

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Extract from "The Aeroplane" report on the King's Cup Race held on 5th July, 1930: . . . . . Mrs. Butler whose companion was Miss Sale-Barker, who was discovered by, and has since vindicated, the Reid Aptitude Indicator,—between them they put up a very fine performance, and flew into fourth place.

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COMMERCIAL AERONAUTICS.

SIR SAMUEL HOARE ON AIR COMMUNICATIONS.

On Sept. 18 the Rt. Hon. Sir Samuel Hoare delivered an address to students of the Bonar Law College at Ashridge, Bucks.

He described the invention of the internal combustion engine as the most far-reaching revolution of the last generation on account of its profound effect on communication. The greatest changes in the habits of the world are made by time-eliminating devices, and now, on the centenary of the opening of the first railway in England, we can travel at a hundred miles an hour and see below us Arab sheiks and Afridis and Waziris driving their own motor-cars. [The latter are probably stolen.—ED.] Sir Samuel quoted from his own experiences, and said that his friends had warned him before he started on a pioneer flight to India of the tragedy which marked the opening of that first railway.

When Liverpool was celebrating that anniversary Sir Samuel said he was with Mr. Winston Churchill in a party of seven privately owned machines which flew from Sir Philip Sassoon's house at Lympne to pay a call on Colonel Walter Guinness. These things all indicate that a revolution is in progress, but, as speed is not an end in itself and mere movement not necessarily an advantage, the gain therefrom is not yet clear. The science is yet young, and its practice scarcely established, so the notable advances that have been made still present unsatisfactory aspects.

The International Convention of Aerial Navigation, for instance, which was signed in 1922 by several Governments, has not solved the question of aerial passage over foreign territory owing to differences in interpretation. While Italy, as an example, considers that the Convention is no bar to prohibiting a foreign service over her land, the other signatories cannot give unrestricted privileges for fear of losing their power to bargain. The British Empire is forced to adopt this guarded attitude in spite of the obvious fact that aircraft lose most of their advantages when they are held up at every frontier.

Air lines should be the means of improving human intercourse, and air lines which are merely potential lines of military communication, or national propaganda, are missing for their main function. The ideal air line is one which transports passengers and freight from place to place with speed and comfort and becomes self-supporting as soon as possible. At present there are scarcely any such, especially in the latter quality. British air lines are subsidised, but not as much as those of most foreign competitors. Their subsidy is on a long term agreement whereby it peters out in seven or eight years and should leave them paying their own way.

British air lines, Sir Samuel explained, have a much smaller mileage than some foreign services could show, but they are operating economic machines, carrying substantial amounts of paying load and yearly drawing nearer to a self-supporting basis. They have an unbeaten record for safety and punctuality.

In the near future British commercial aviation may have quantity also. The route to India added a substantial mileage to existing lines, and a few months hence the first stages of a service to Cape Town will be opened.

Even in view of all this, the real usefulness of aviation to Man is yet to show. The immense expenditure on it in the past twenty years can hardly be said to return handsome dividends at present, and certain developments are necessary to make it really worth while.

The fullest and freest controversy on all air transport problems cannot fail to do good so long as fanaticism on either side is avoided. There is no better ground for thinking that everything can be done in the air than for imagining that nothing can.

Airships have started an argument that should do good, for even if they lack complete success the experiment seems to have been well worth trying and may lead to the production of a transport instrument which will give the Empire an unity it never had before.

All forms of transport are supplementary, each to the other, and together they form a single and undivided service. The problem is to allocate to each vehicle its appropriate tasks and loads; and aircraft are decidedly supreme under enough circumstances to make them essential. From this standpoint, Sir Samuel suggested that British shipping companies and British railways should make the fullest possible use of air lines in a supplementary capacity, just as the two great Canadian railway systems are doing.

Another necessity is more differentiation, especially as between mail and heavier transport. The present equipment of British air lines is slow, and no longer the best even in view of the safe and sound policy; but there is no technical reason why mails should not travel by night and day, averaging 100 m.p.h. or better. Passengers cannot be hurried so, as flying is quite fatiguing, but fast mail is quite possible and very desirable.

Unfortunately the General Post Office is not co-operating and has proved itself the blackest reactionary in all matters concerned with the air. Britain is one of the few countries without an air mail stamp and her air-mail pillar-boxes are a national curiosity.

Lastly, if air development is to help the Empire as it might the science of weather must make a great advance. Meteorology and Aeronautics are the heavenly twins, the latter dependent for its progress on the former and the former owing many recent advances to the latter. The two great gaps are the Arctic and Antarctic, and Sir Samuel took occasion to congratulate the expedition under Mr. H. G. Watkins which is at present engaged in studying flying and weather conditions in Greenland.

TOWARDS GOOD HOPE.

In January of 1931 Imperial Airways will open the first half of the air mail route from Cairo to Cape Town and will conduct business as far as Kisumu on Lake Victoria for a start. This is very good news, and the venture has all the earmarks of considered and eminently sane progress.

For the past year a route has been operating in India, and that service will connect England to the African route. Much experience of tropical and semi-tropical operation has been gained on it which will be invaluable to the pilots who will fly across the much more difficult country in Africa.

Among the precautionary measures which have been chosen as alternative to pushing a fast passenger service through to the Cape at the start is the obvious one of establishing the trail half way to begin with. Furthermore the schedule is conservative to permit the machines to be nursed, and the loads will be restricted to amounts that can be

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carried on half the power available. In the absence of reliable meteorological information such safeguards are the only reasonable course to adopt, and the almost entire absence of weather reports in Central Africa is admitted.

Although passengers will be carried the service is mainly one for mails, so that the accommodation which passengers always require will not involve a large outlay at the start and the real work of the route, which is to establish itself on a sound basis, can go forward with what help it can derive from mail revenue—incidentally a more prolific source than any passenger service.

Very full plans for developing a meteorological service have been prepared.

The section which will be opened in January is the stretch from Cairo to Kisumu, which is on Lake Victoria, 150 miles short of Nairobi. The length of this first half of the route is 2,620 miles, and there still remains another 3,130 miles to Cape Town. The route as planned at present follows the valley of the Nile, and then through Uganda, Tanganyika, and the Rhodesias to South Africa. From Khartum to Kisumu flying-boats will be used until suitable landing fields can be prepared.

This first part of the journey will make the following calls, and the conveniences mentioned will be provided:

CAIRO, terminus and junction with India route.
Assiut, refreshment tent.
Luxor.
ASWAN, overnight stop, 595 miles from Cairo.
Wady Halfa.
Karima, refreshment house.
KHARTUM, overnight stop, 645 miles from Aswan.
Kosti.
Malakal, refreshment house.
Shambe.
JUBA, overnight stop, 825 miles from Khartum.
Butiaba, refreshment tent.
Port Bell, refreshment house.
KISUMU, terminus of first half, 555 miles from Juba.

Later, when night-flying facilities are provided, the distance between Cairo and Khartum may be flown in one day and further shortening up will no doubt become possible. At present every margin is given for safety's sake while experience is being gained.

The Armstrong Whitworth Argosies (three Armstrong Siddeley Jaguars) which will operate from Alexandria to Khartum can seat 18 passengers; the Short Calcutta flying-boats (three Bristol Jupiters) have a capacity of 15, but a complement of 12 passengers only is being arranged for in pursuance of the policy of reserve power and safety.

When the southern half of the route comes to be operated the De Havilland Hercules (three Bristol Jupiters) will probably be taken off the India route where they will be replaced by Handley Page 40-seaters.

All the aircraft will have wireless, but the specially useful function of providing the pilots with weather reports will not be in full operation until the weather can be more adequately reported. Outside the Union of South Africa the only meteorological service is an elementary station at Juba.

Four stations will now be equipped in the Sudan. Uganda, Kenya and Tanganyika have already formulated a plan for a joint meteorological service in the Victoria Nyanza district, which will be financed partly by the Egyptian and Sudan Irrigation Department and partly by the British Government. Northern Rhodesia has arranged to link up with the East African Meteorological Bureau and will equip two or three stations for forecast work, and Southern Rhodesia will do the same. The air route, however, will be working some time before these aids can be of much use.

The new service, when it is carried through to the South, will halve the present minimum time between London and Cape Town, and save a great deal more than that to some of the places along the route. It will at last make a way through Central Africa from North to South and serve territory which has not previously been opened up.

IMPERIAL AIRWAYS FINANCE.

The earnings of Imperial Airways Ltd. for the year ending Mar. 31, 1930, were set forth in a preliminary statement issued on Sept. 16.

In general, the returns seem to have been greater than for the previous year by nearly £30,000, but a more conservative plan of finance has led the directors to set aside a much larger sum for obsolescence and apply less to dividends.

Last year £36,176 was charged for obsolescence and an additional £20,000 was put into a reserve fund for the same purpose. This year the amount charged against obsolescence is £85,387, and the increase is probably due to the speed with which new aircraft are being produced and the improvement in performance which may be expected to put existing equipment out of date in a comparatively short time. Even including the special additional reserve for obsolescence last year this year's allotment exceeds it by nearly £30,000.

After this deduction the net profit is £60,138, and with the balance brought in from last year the sum available is £66,827. Of this £25,000 is set aside for taxation, a dividend of 5 per cent. is being paid on ordinary shares, and a balance carried forward which is increased from £6,689 to £20,956 compared with last year.

The comment of financiers on this statement is that greater conservatism has been shown in dealing with profits and that the caution displayed in the greater provision for obsolescence is eminently sound.

Incidentally, the India route is proving one of the most profitable of the company's services. European competition is very keen and is made the more difficult for Imperial Airways by the attitude of other Governments. Subsidies for aviation there are looked upon as a sort of investment in potential military power, and are not so critically scrutinised as in England.

An unsatisfactory feature of the balance sheet to any interested observer of Civil Aviation is the omission to show what amount of the quoted profits was earned and how much was Government subsidy. Nor is there any clear indication of the volume of business and its turnover.

The only mention of the Trading Account is a balance of £169,376 9s. 1d. quoted after the addition of subsidies and charging up all working expenses. The comparative magnitude of both subsidy and working expenses is left quite obscure in spite of the interest which attaches to these items, and in spite of the fact that all Taxpayers are directly interested.

No doubt the shareholders can get the information by asking for it at the General Meeting, but the subsidy is definitely the taxpayer's pidgin and its extent is a piece of information that ought to be public. Paying the piper has traditional compensations of privilege, and even the goose which lays the golden eggs has claims which boards of directors cannot ignore without sacrifice of dignity.

In the Directors' Report mention is made of the enforced and costly change of route for the India service, and the failure of traffic to increase to expectations. These are presumably reasonable explanations given in good faith, so the withholding of important information argues an unnecessarily keen regard for the feelings of interested taxpayers.

HIBERNATION.

The Imperial Airways service between Croydon, Birmingham, Liverpool and Manchester, which was opened in June of this year, was withdrawn on Sept. 20. Weather conditions and short daylight hours have made the continuation of flying to schedule in the North impracticable, and we doubt whether even night-flying organisation can improve the possibilities. Darkness can be defeated, but not the combined fog, sleet, and general dirt of Winter weather in the Midlands and nearer North. Unless connection can be made with Continental services the usefulness of the internal route is so reduced that it is not worth while.

According to *The Manchester Guardian* of Sept. 17, Alderman W. Davy said that full figures of the experiment were not yet forthcoming, but that the patronage and success of the service had been better than expected, and the subsidy which the three northern cities had undertaken to pay would not all be required. He also said that there was no doubt of its renewal next Spring, and its extension to Glasgow was being sought.

All of which is exactly as THE AEROPLANE foretold when the scheme was started. Having lived, for one's sins, nearly ten years in Coventry and Birmingham, and having been frequently in Manchester and Liverpool, one has no illusions about Midland flying weather in the Winter.—C. G. G.

M. GROSFILS RETIRES.

M. Paul Grosfils, who has been manager in Great Britain for the Air Union since 1922, has announced his retirement from active business. M. Grosfils has been for years one of the best known and best liked figures in Commercial Aviation, not only in Great Britain and the Continent but also in the United States, where he has made two tours of propaganda and inspection. And he is one of the few men who have made a really comprehensive study of aeronautics as a commercial proposition.

The organisation of Air Union in London, and its strong position in the Transport Industry, is largely the result of M. Grosfils' industry, ability, efficiency and initiative. His task has been to supervise the company's expansion in this country from a small line with an office at Croydon to a transport organisation with all the amenities of the best railway and steamship lines.

Before coming to the Air Union M. Grosfils was associated with *Aeroplanes Morane Saulnier*, and has recently been the London representative of the *Compagnie Générale Aéropostale*. His duties will be taken up in the London offices by Mr. J. N. Bamford on the administrative side and M. E. Bouderie in technical matters. Both have been with the company since it set up in England, and are deservedly popular and respected.

M. Grosfils is still a young man, as business executives go, so the world of commercial aviation may still cherish hopes of seeing him back again in harness after he and Madame Grosfils have enjoyed a proper holiday. THE AEROPLANE takes this opportunity of expressing the hope that both may happen under the happiest auguries.

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Avro built the famous 504K which was adopted in 1917 for the training of British pilots. The new Avro Trainer Type 621 is, to modern military types, what the 504K was to the military types of thirteen years ago.

But while the basic principles of instruction remain the same the superficial and economic aspects of flying have changed considerably. And so this new machine has been designed with an eye to modern requirements. It can be supplied as a landplane with Lynx or Mongoose engines and as a seaplane with the Lynx engine. Maintenance of either model is made easy by the accessibility which has been achieved.

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THE LIGHT AEROPLANE
AND THE FLYING CLUBS.

A FLYING GARDEN PARTY.

On Sept. 17 Mr. and Mrs. Griffith Brewer entertained a large number of friends at a garden-party at Hanworth Aerodrome. Mr. Griffith Brewer is President of the Chartered Institute of Patent Agents, and incidentally his claims to fame in the aviation world include one that is unique and another that is quite unusual. He was as a matter of history the first Englishman to go into the air on a power-driven aeroplane, which he did at Le Mans in 1908, as a passenger with Mr. Wilbur Wright. Furthermore he continued to do the unusual when he recently took his pilot's A licence at the age of 63 years.

Mr. Brewer began to take flying instruction at Hanworth some months ago because of ill-health, and states that he has got from it not only his pilot's ticket but a great improvement in well-being.

The garden party was attended by some 300 guests, and among the diversions were complimentary flights in the taxi and school machines of N.F.S. Ltd. The pilots of a couple of Moths, three Desoutters and the Giant Moth were kept unremittingly busy for about two hours until the rain came and damped the enthusiasm of those still waiting. The number of people who made their first trips into the air was quite amazing, and made up the majority of the 150 passengers of the afternoon. Many of them were well past middle age, and one husband and wife were each over 70 years of age.

The reception by Mr. and Mrs. Griffith Brewer took place in the Club entrance Hall, and tea was served in the club and also in one of the big sheds where the great proportion of the guests seemed to congregate and indulge in aeronautical small-talk. Beside those to whom it was quite a new subject, many of the leading lights of British aviation were present. Flt. Lt. H. M. Schofield gave an aerobatic exhibition early in the afternoon.—F. D. B.

A MIXED PARTY AT LENHAM.

On Sept. 21 a kind of family party was held at Lenham, which is on the road between Maidstone and Ashford. On this occasion the grown-up members of the Aviation World such as private-owners and light aeroplane pilots as well as Service visitors flew down to Lenham and did their respective pieces for the benefit of the Peter Pan member of the family as Gliding might very well be called, —in that it does not seem to grow up much. In spite of the bad weather at their various home aerodromes some eight or more visitors of the 27 who had promised to come, did actually arrive by air.

The feature of the day was the competition between the Kent and Channel Gliding Clubs for the very noble Challenge Cup which had been presented by *The Kentish Express*. This Cup was to go to the Club whose team put up the best aggregate duration and was won by the Channel Club. A report of this competition will appear in *The Sailplane*.

There was a good lunch properly served in a marquee on the ground and after this two Service pilots came over from Eastchurch and put up a really excellent show of aerobatics. This was probably all the better for being informal.

After this Mr. Jackaman went up and aerobatted his new Puss-Moth, in which he later put up an excellent show of bomb-dropping.

A distinguished visitor who motored over was Sir Philip Sassoon.

Among the aeroplanes was the old Sopwith Dove (Clerget) which Mr. Lowe-Wylde has acquired. He flew this during the afternoon in spite of a terrific smack he had had in the morning when he had turned his glider over.

Apart from Dr. Whitehead Reid's own Widgeon there was Mr. Robinson's Moth, Mr. Jackaman's Puss-Moth, a 504K Avro from Shoreham, Capt. Harold Balfour's black Avro Avian, a Blackburn Bluebird, Miss Wilson's Moth, and a Klemm (Cirrus) piloted by Mr. Rogers.

THE CURRENT FLIGHT TO AUSTRALIA.

Mr. F. R. Matthews, former instructor at the London Aeroplane Club, left Croydon at 06.00 hours on Sept. 16 to fly solo to Australia. He is in a Puss-Moth, G-ABDW, with extra tankage and hopes to beat Sq. Ldr. Bert Hinkler's record of 15½ days.

On the first day he reached Belgrade in nine and three-quarter hours. The distance was 1,050 miles, which was 200 miles less than his intended first stage to Sofia. Presumably he was stopped there by weather as he stayed there the whole of the following day unable to proceed.

On Sept. 18 Mr. Matthews left Belgrade at 08.30 hours and arrived at the Bojourischte Aerodrome, Sofia, at 10.30. Later in the day he flew to the San Stefano Aerodrome, Constantinople, in bad light and thunderstorms.

THE VETERAN.—Mr. Griffith Brewer, who was the first Englishman to ride in an aeroplane (in 1908) and recently got his pilot's "A" licence at the age of 63.

Between Sept. 19 and 21 he covered the distance from Constantinople to Ramadi and continued to Baghdad and Jask, where he arrived very late.

On Sept. 22 he left Jask at 04.00 hours and got to Karachi about 19.00.

By taking seven full days to reach this point he is one day better than Sq. Ldr. Hinkler's time on the round-about route by North Africa, and the same amount behind Miss Johnson's time on the same route which he (Mr. Matthews) followed.

A HONEYMOON FROM SYWELL.

On Sept. 16, Sq. Ldr. and Mrs. Gilbert Martingell took off in a Moth from Sywell Aerodrome for their honeymoon; the first instance of such an aerial event,—in Northampton at least. The bride was Miss Phyllis Bletsoe Brown, a member of the Northamptonshire Aero Club, and Sq. Ldr. Martingell met her at the Sywell Pageant a year ago.

A formation of three aeroplanes, piloted by the Brothers Linnell and Mr. Tyzack, set off to escort them, but came back with a report that the weather was terrible. Three Avros came over from Wittering, and some of the guests also arrived by air. Mr. Jack Linnell flew over the church as the bridal party emerged and dropped a silver horseshoe by parachute.

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STANDARDISING INSTRUCTION.

The Brooklands School of Flying has been engaged in evolving a system which will ensure that no pupil goes solo without complete training. And the system is at the same time simple enough to be easily worked. It ensures (a) that each pupil has received instruction in every element, (b) that all faults have been eliminated in each category.

The first object is secured by a large chart, in the form of a blackboard on which are the pupils' names. Sub-divisions correspond to all the phases of instruction, from "the effect of the controls" to "spins" and "forced landings." As each pupil satisfactorily completes that phase, the sub-division is marked off and the true experience of each pupil—as opposed to a tally of flying hours—can be seen at a glance.

On completing each instructional flight the pupil receives a printed report-form on which are listed such points as right-hand turns, engine off, landings, etc. At the conclusion of each flight the instructor notes on this report any faults—such as "too much rudder," "lets the nose drop." This report is produced on the next instruction flight. Thus not only is it known what phases of training are satisfactorily completed, but also the faults in those that are not.

For such a system to work satisfactorily each instructor has to instruct in precisely the same way. The Brooklands School has achieved this, for the "patter" is standardised.

This method has proved equally economical of the instructor's time and the pupil's money and will doubtless be of interest as the result of the accumulated experience of a first-class flying school.

A significant fact is that during the whole 1930 flying season no pupil has even bent an undercarriage.

A useful index to the steady growth of private flying is afforded by an analysis of the figures for the operations of the Brooklands School of Flying during the periods January to August last year and January to August this year.

The figures for this year show an increase in hours of dual instruction flown of 48 per cent., and of hours flown solo of 41 per cent.; and the total figure for "joy rides" shows an increase of 56 per cent. The number of pupils on the Register was doubled, the number of "A" Licences increased by 300 per cent., and the number of aircraft sold by 400 per cent

It is impossible to give any accident statistics as there has been no injury to pupil or instructor since the School began operations.

The pupils of to-day represent, naturally, the private flyers of to-morrow, but of more importance is the fact that this increase is recorded in spite of the fact that both Hanworth and Heston have begun flying training in the meanwhile, and this shows that saturation point is no means reached even in South West of London.

The average cost to an *ab initio* pupil of an "A" Licence works out at £42 10s. during 1930.

BAD LUCK AT LLANDUDNO.

On Sept. 18 a gale swept the Llandudno district, including the aerodrome where a number of machines taking part in the Llandudno Flying Week were picketed. Fortunately most of them were secured well enough to prevent damage but an Avro Avian, flown by Capt. C. B. Wilson from London the previous day, was picked up by the wind and turned onto its back. One wing was damaged, and the machine was secured as it lay to prevent any further breakage until the gale subsided.

Considerable damage was done to tents, hoardings, crockery, etc., and one side of the ground was littered with the canvas chairs which had been placed in the enclosures.

TWO NEW LIGHT AEROPLANE RECORDS.

Mlle. Maryse Bastié, in a Klemm monoplane (40 h.p. Salmson engine) has recently broken the World's Duration Record for single-seat light aircraft weighing less than 350 kgs. (770 lbs.) by remaining in the air for 37 hours 55 mins. 43 secs.

She took off from Le Bourget at 19.31 hours on Sept. 2 (alone) in her Klemm-Salmson *Trottinette* carrying 525 litres of petrol and 30 litres of oil. She remained in the air until 09.25 hours on Sept. 4, and in the intervening time she circled continuously over a 100 km. course.

Another record in the same class was broken on Sept. 4-5 by M. Laulhe, who in an Albert monoplane (40 h.p. Salmson engine), covered a distance of 2,714 kms. (1,685 miles) in 26 hours 1 min. over a closed circuit. The previous longest distance covered in a closed circuit was 2,500 kms. (1,552.5 miles), made by Commandant Vicherek of the Czechoslovak Army in an Avia II monoplane (60 h.p. Walter).

Both these brilliant performances were made with the assistance of the excellent little 40 h.p. Salmson engine which already has a very high reputation for reliability all over Europe,—and will soon be in process of production by British Salmson Aero-Engines Ltd. at their new factory at New Malden, Surrey.

MANY INVENTIONS.

They say that if you visit a certain Service Aerodrome not unconnected with the weighing of aircraft in the balance, and the finding of them wanting more often than not, you will find a bustle and activity equal to that of the Port of Rye or the dead cities of the Zuider Zee. For contrast you will probably rush to some mouldering cathedral town where bishops upon their lawful occasions will seem to flash past with the velocity of bats out of Heaven, deans will appear to dart across crumbling cloisters like sable Schneider Cup entrants flying low and minor canons will, to your astonished eyes, hurtle across the mouldering precincts with all the glad speed of gaitered projectiles.

At the aerodrome in question, however, all is dignity and decorum, as a mere civilian pilot, with a light aeroplane in a devil of a hurry to fill up with petrol and get away, found out the other day. After the leisurely exchange of minor courtesies and the autographing by the pilot of a stout handful or so of buff forms and a decent interval for silent meditation, a gargantuan 30-ton lorry hove itself over the far horizon and approached with all the dignity of a recently awakened mastodon. It was the last word in 6 or 8 wheeled military vehicles and besides a glittering mascot representing Patience on a monument, it was equipped with all the panoply of war, including a crew of eight. Towering over the light aeroplane it exuded 10 gallons of petrol, most of which was in its trunk (or pipe line) anyway, and that was that.

Was the pilot grateful? Not he.

Being a civilian, obsessed by the idea that when in a hurry it is expedient to get a move on, he grumbled bitterly because it had taken 8 men and a 30-ton lorry fifty minutes to get 10 gallons of petrol.

Shame upon him. He should have reflected that the fact of anything happening at all was proof that our aerial watch-dogs are alert and ready for the worst, even to a lightning raid on London by enemy aircraft.

K.L.M. has scheduled eight east-bound and eight west-bound mail flights between Amsterdam and Batavia beginning on Sept. 25. All the old K.L.M. pilots are taking these flights in turn and the younger pilots are accompanying them as second pilots.

On Dec. 12 Mr. Smirnoff is taking the three-engined (Jupiter) F.IX and the second pilot of this machine is Mr. Aler, one of the few, if not the only foreigner who has his second-class British Navigator's licence. Mr. Strykers of the Dutch Marconi Co., who is a well-known and popular figure among his British colleagues of the Marconi Co. at Croydon will be on board as wireless operator.

There is a strong rumour that under the able leadership of Group Captain A. C. Oustick, supported by Wing Commander T. Hickear, a listening post has been established at the foot of a 160 ft. mast near Littlestone for the purpose of "harking out" for aircraft. As, in bad weather Littlestone is right on the route of nearly all commercial machines and as in such circumstances about a 100 feet of this silly pole will be in the clouds, it seems probable that these heroes will hear aircraft good and proper one of these days when an air liner hits the unnecessary obstacle.

There seem to be any number of places where this mast would not have been a serious menace to air traffic and we offer the suggestion that the island of St. Kilda is now an eminently desirable vacant lot where the acoustical brigade could put up their mast and listen to the twittering of petulant passing puffins.

Mr. Thomson, of Imperial Airways Ltd., who was at one time strongly suspected of having been devoured by cannibals in New Guinea, has returned without a single piece bitten out of him after 18 months' absence. He made no less than 250 return trips with G-EBLE, an Imperial Airways trimotor Handley Page, between the coast and the gold fields out there, passing over an 8,000 ft. mountain in the course of each flight. On account of thick fog and remarkably bad weather his 251st trip ended unluckily and he was missing for 6 days in impenetrable forests on the wrong side of the mountains. We pictured Mr. Thomson served up on a chafing dish at some cannibal festival, or, at best, gnawing struts and bits of fabric to keep alive.

Nothing of the kind occurred, for his cargo on that particular trip consisted of about a ton and a half of condensed milk, canned soup and tinned bully beef. It is thought that as well as living like a king himself until found by other aircraft, he managed to placate the cannibal king with gifts of bully beef, alleging it to be best corned white-man and cans of soup which he doubtless passed off as extracts of ditto.

The natives of those parts are supposed to give way to cannibalistic beanoes only after an inter-tribal bicker when meat happens to be lying about the place and it is probable that they are actuated more by a sense of tidiness in which they are encouraged by local supporters of the anti-litter campaign than by any anthropophagous craving.—SPRY.

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TRADE NEWS

GOODYEAR AIR WHEELS.

ON AIR WHEELS.—A Fokker Super-Universal monoplane (Pratt and Whitney Wasp engine) with complete Goodyear Air Wheel equipment. The rigid undercarriage struts are noteworthy.

The Goodyear Tyre and Rubber Co. Ltd. has received the following letter which gives the approval of the Air Ministry to the Goodyear Air Wheels for use on civil aircraft.

Air Ministry,
London, W.C.2.
16th September, 1930.

The Goodyear Tyre and Rubber Co. Ltd.,
Lots Road, S.W.10.

GOODYEAR AIR WHEELS.

Gentlemen,—I am directed to refer to the wheels of the above type which have recently been tested at the Royal Aircraft Establishment, and I am to inform you that wheels of this type can be approved for use on civil aircraft subject to approval of the particular method of fitting in each case. If, therefore, these wheels are fitted to aircraft already holding a Certificate of Airworthiness, the procedure detailed in paragraph 35 of the Air Navigation Directions 1928 (A.N.D.7) for modifications subsequent to issue of the Certificate should be followed.

(Signed) FOR THE DIRECTOR OF TECHNICAL DEVELOPMENT.

The Goodyear Air Wheel consists of a tyre of extremely large air volume, designed to operate at pressures ranging from 5 to 15 lbs., mounted directly on a hub of comparatively small diameter.

The hub is a light-weight thin steel shell on which are mounted aluminium alloy side-flanges. This shell also supports the bronze axle-bearings which have fittings for lubrication.

The side-flanges are provided with corrugations which match with those moulded into the bead of the tyre so as to prevent the latter from turning on the rim under torsional stresses. One of the flanges is detachable to allow the removal of the tyre and this flange is held in place by a lock-ring and is finally held in place by a hub-cap.

An internal-expanding brake has been developed for this wheel and the complete brake-hub is interchangeable with the standard hub. The brake-hub is also interchangeable with either right or left hand wheel.

The brake actuating lever may be mounted either in front of, or behind, the axle and may be set to pull either vertically or horizontally. In addition each lever has four points to which the tension cable may be attached to adjust the leverage ratio between the brake and the controls in the cockpit.

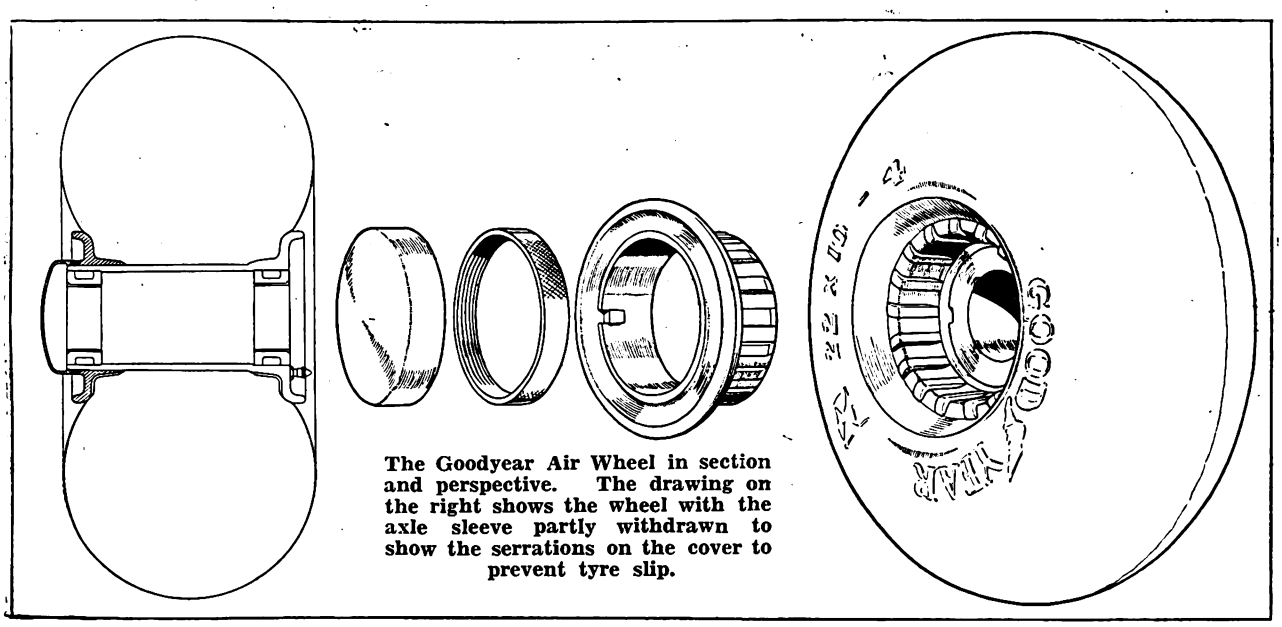
The Air-Wheel is fully approved by the U.S. Department of Commerce and by virtue of a reciprocity of licences between the U.S.A. and Canada the Air Wheel is also licensed in Canada. A recent statement in a Canadian magazine claims that there are more Moths fitted with Air Wheels in Canada than with any other make of wheel and tyre.

The Air Wheel has a very low drag, and in a recent test by the U.S. National Advisory Committee for Aeronautics, a pair of 13 x 30-in. Air Wheels which were substituted for a pair of 8 x 36-in. standard high-pressure wheels and tyres on a Fairchild cabin monoplane (Pratt and Whitney Wasp engine) did not increase the drag of the undercarriage.

The Air Wheel, with its large ground contact area, allows aircraft to land and take off from soft muddy ground, sand and snow-covered fields from which an aeroplane with ordinary high-pressure tyres could not operate.

Similarly, owing to the low inflation pressure and the flexibility of the large tyre, Air Wheels are capable of considerable side deflection as well as vertical deflection which permits the making of cross-wind landings with much greater safety.

The accompanying illustration shows a Fokker Super-Universal (Pratt and Whitney Wasp engine), which weighs approximately 5,000 lbs. fully loaded, fitted with Air Wheels and with rigid girder undercarriage struts in place of the usual



The Goodyear Air Wheel in section and perspective. The drawing on the right shows the wheel with the axle sleeve partly withdrawn to show the serrations on the cover to prevent tyre slip.

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rubber-sprung compression legs. This machine was used by the Goodyear Company for experimental work in connection with the development of the Air-Wheel, and although the elimination of shock absorbers is not recommended for such heavy machines the fact that all tests with the machine so arranged were satisfactory is a very high recommendation for the shock-absorbing qualities of the Air Wheel. For light aircraft several American aircraft manufacturers are using a rigid steel tube undercarriage with Air Wheels.

Several British Aircraft manufacturers are experimenting with Air Wheels and there will be interest in seeing what developments result from the Air Ministry's approval of these wheels for civil aircraft.

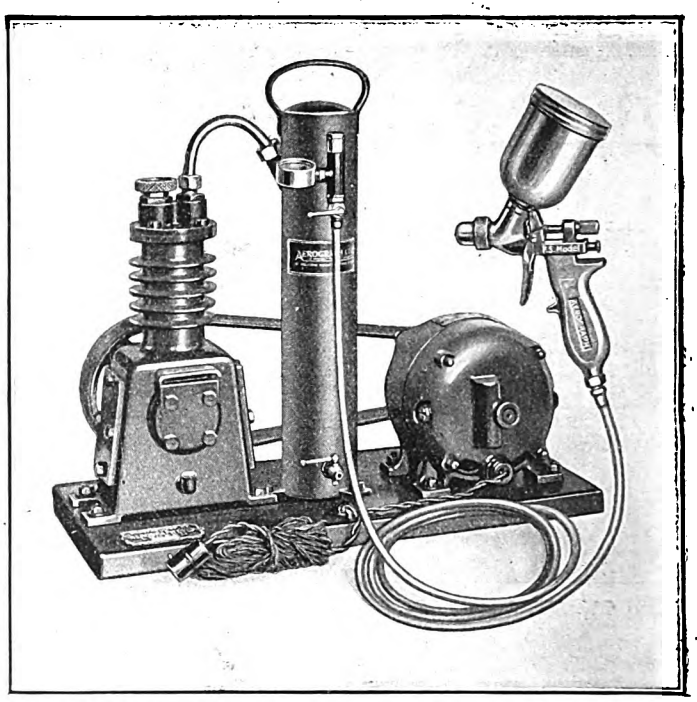
SOME USEFUL SPRAY-PAINTING EQUIPMENT.

A compact and handy miniature spraying plant has been produced by The Aerograph Co. Ltd. and is known as the Whippet. This set is just as speedy as the well-known Aerograph machines, but has been designed for all light work, such as the touching-up of cars, for use in furniture factories, for interior decoration, and for numerous small jobs about the house.

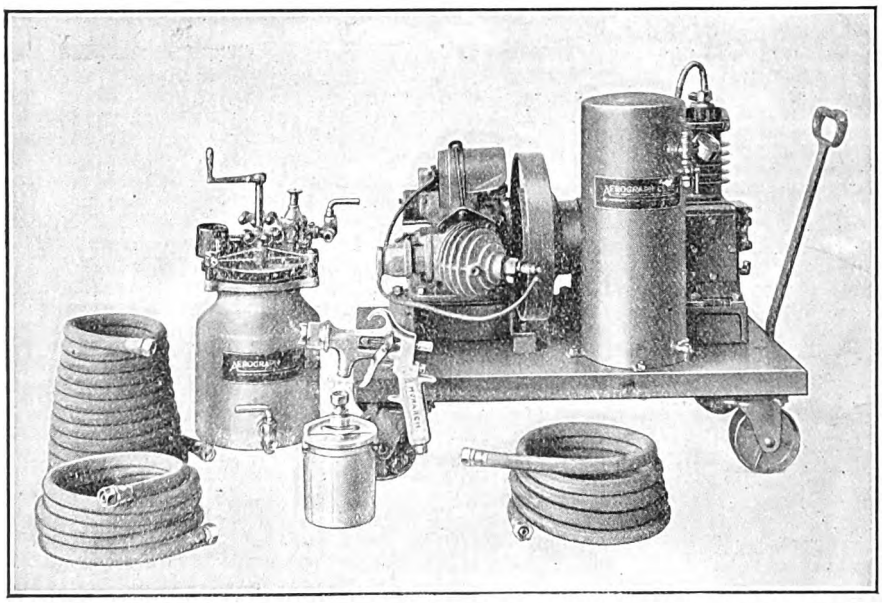
The Whippet can be carried from place to place, and exclusive of the gun, is mounted on a base which is only 20 in. long by 11 in. wide. The set can be plugged into, and operated from, an ordinary electric light socket, as ample power is provided by the ¼-h.p. motor.

A standard spray gun of the F.S. type is supplied, and with this a fine mist, a thin line, or a thick coat of paint can be obtained as and when required.

This light set has not been designed for the lengthy operations which are necessary for the painting of motor-cars on a commercial basis, neither has it been intended for house decoration on a large scale. One must not, therefore, expect from it the same results with the heavier paints that can be obtained with the full-size sprayers. But with light paints and enamels the same fine finish as is got by the full-size models is always obtainable with the Whippet.



THE WHIPPET.—The neat portable spraying plant produced by The Aerograph Co. Ltd.



THE GREYHOUND.—This self-contained spraying unit can be either driven electrically or as above by a petrol-engine.

The Aerograph Co. Ltd. are also producing a light portable plant of a size between that of the Whippet and the larger sizes. This is the Greyhound. This piece of equipment is mounted on castor wheels and can be moved about as required. It can be had either with an electric motor or with a ¾-h.p. petrol engine. With this set a spray-gun with cup-feed can be used, or where its use is made desirable by continuity of work a one-gallon painting unit can be used instead.

Both these sets are remarkably cheap and should prove of value in the Aircraft Industry where spraying is now so generally used. Inquiries about these sets, mentioning THE AEROPLANE, and addressed to The Aerograph Co. Ltd., 43, Holborn Viaduct, London, E.C.1, will receive prompt attention.

AN OLD FRIEND'S REAPPEARANCE.

His many friends in England will be glad to hear that Monsieur Pierre Verrier, who before the War was one of the most artistic pilots of a Maurice Farman in this country, has recently established himself in Paris at 25, Rue Rennequin, Paris 17, and is contemplating entering the Aircraft Industry again. He has recently taken to flying as an amateur at the Farman aerodrome and finds himself quite at home in the air,—though, as he remarks in his letter, he is filled with a desire to pilot very carefully.

M. Verrier will be glad to hear from any firm in England which would like to negotiate with placing its agency in France. He would particularly like to get in touch with manufacturers of a reliable and reputable light aeroplane suitable for touring. With the present French system of subsidising private flying there are opportunities for selling even English machines in France.

MRS. BRUCE'S EQUIPMENT.

That the Hon. Mrs. Victor Bruce is about to start on a "mystery flight" is a much-advertised secret. Apparently her mysterious route is to take her along the beaten track to Rangoon, and thence along the well-blazed trail to Japan.

Her machine is a Blackburn Bluebird (Gipsy II engine) which has been supplied by Auto-Auctions Ltd., Burlington Gardens, W.1. She is taking a Dictaphone with her, and very wisely she is taking a radio set as well.

This set has a wave-length of 35 metres and a range under favourable circumstances of 1,200 miles. Fixed aerials are used so that messages can be sent out from the machine when it is in the air or on the ground. The whole equipment does not weigh more than 25 lbs.

MALLITE PLYWOOD
USED BY THE LEADING AIRCRAFT MANUFACTURERS THROUGHOUT THE WORLD.
TELEPHONE BISHOPSGATE 5641 (4 LINES)
MANUFACTURED TO SPECIFICATION 3.V.3. BY
THE AERONAUTICAL & PANEL PLYWOOD Co. LTD. 218/226, KINGSLAND Rd. LONDON. E.2.
TELEGRAMS: "VICPLY, KINLAND, LONDON."

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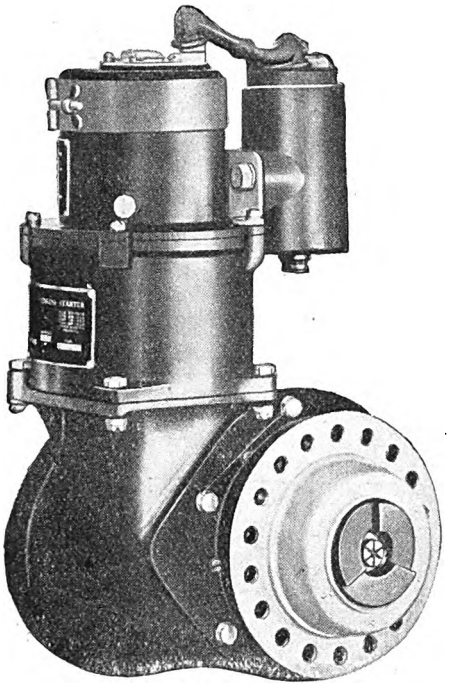
Inertia Starters
for Aero Engines



Considerable attention has recently been drawn to the desirability of quick and convenient starting of aeroplane engines.

For example, in the recent International Touring Competition, marks were deducted from competitors whose machines were not fitted with engine starters, and the subject has been discussed at some length in the press.

B.T.H. Inertia Starters are of minimum weight and made for hand or electric motor operation (the latter pattern being arranged for control from the pilot's cockpit). They impart a high initial cranking speed to the engine—about 80 r.p.m.—starting the engine in about 5 seconds with motor operation, or 15 to 30 seconds with hand operation.

Made in five patterns to suit engines from 1,300 cub. ins. to 2,500 cub. ins.

The illustration shows a Combined Hand and Electric Inertia Starter for Engines up to 2 500 cub. ins.

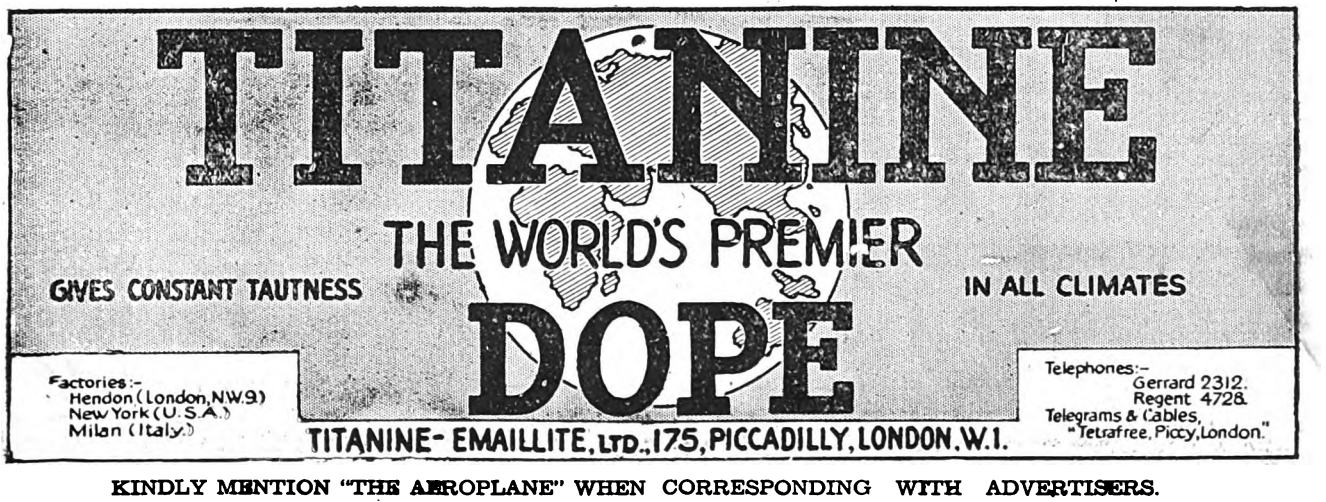
Full particulars will be supplied on applica ion.

The British Thomson-Houston Co., Ltd.

ELECTRICAL ENGINEERS AND MANUFACTURERS

Alma Street :: Coventry

Works: Coventry, Rugby, Birmingham, Willesden and Chesterfield.



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The set has been designed so that it is practically fool-proof and requires no technical knowledge of the subject at all. This result has been got by using the Autocode Wireless Key designed by Mr. H. Anthony Hankey, of St. Peter's Square. This ingenious device was brought out during the War 1914-18 for use on small steamers which did not carry a radio operator.

This key in principle has a number of discs, one for each message, and these are rotated by clock-work. The discs have the necessary bumps on their circumferences to make a Morse message as they rotate past a rubbing contact. All the operator has to do is to put the selector plug in the appropriate socket and switch on the mechanism. The required message is then sent out at the rate of 12-15 words a minute for five minutes.

Mrs. Bruce has five signals on her set and they are all prefaced by the call-sign of the machine which is GABDS. The first signal is OK which means that the machine is flying normally and all is well. The next is LG which means that the Bluebird is about to make a normal landing.

The signal M.P. means that the machine is still flying but that the pilot is having trouble of some sort or another. It is really a warning signal that the pilot may transmit another signal saying that a forced landing is being made. FA means that a forced landing has been, or is being, made ashore somewhere and that help is probably required.

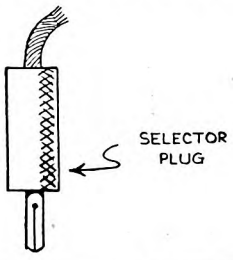
The final signal SOS means that the machine is making a dangerous descent, most likely in the sea, though it might be on land. But in either case urgent help is required at once.

These signals are to be sent out every hour and normally may be expected every half-hour. By carefully logging these signals, those following this flight should be able to find out quite closely the position of the aircraft at the time the signal is made. This is assuming that the Bluebird is on a pre-determined course or that stations for taking wireless bearings are available in that locality.

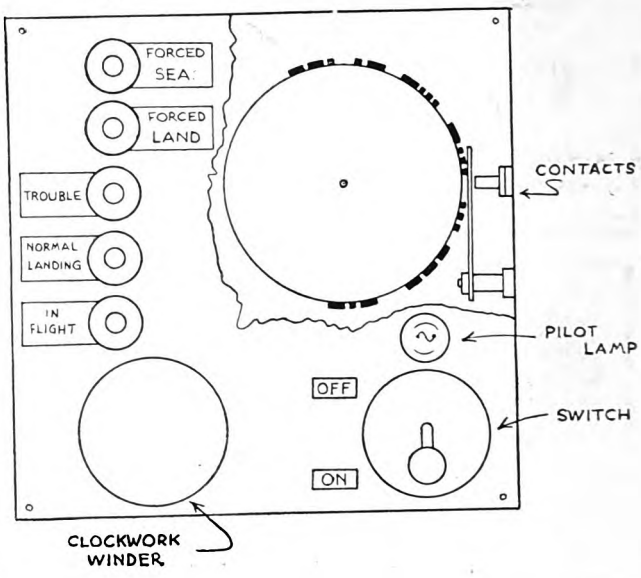
The Radio Society of Great Britain has been asked by the makers of the apparatus to use its widely spread influence with foreign stations, and amateur stations both British and foreign, to get a big number of stations listening-in for these signals.

Any information which listeners-in may obtain should be passed on to Mr. Sinclair, whose telephone number between 9.00 hrs. and 17.00 hrs. is Slough 672, and from 17.00 hrs. to 9.00 hrs. is Maidenhead 1203.

"UP GIRLS AND AT 'EM."—The Hon. Mrs. Victor Bruce with the spanner with which she apparently intends to persuade her Gipsy-engined Bluebird to take her on a mystery flight round the World, as advertised. Mrs. Bruce's strength of mind and determination may be gauged by the way in which the handle of the spanner has been bent. Apparently Mrs. Bruce can drive anything on land, on the water or in the air. She qualified for her "A" Licence after only six days' instruction by Capt. H. D. Davis and Mr. G. E. Lowdell at the Brooklands School of Flying, and she has just bought a Blackburn Bluebird from Auto-Auctions Ltd.



The Short - Wave Aerodrome Ground Station, Type G.A.3 whose call-sign is G5GL and is at Slough, will be available for communicating with other Short-Wave Stations. The standard British Amateur Wave Band will be used.



NEW COMPANY.

P. B. Deviator Ltd.—Private company. Registered Sept. 17. Capital, £10,000 in £1 shares. Objects: To carry on the business of aeronautical experts and consultants, manufacturers and repairers of and dealers in aeroplanes, seaplanes, flying-boats, airships, balloons, compasses, etc.

The subscribers are: J. P. Brown, Hillcroft, Park Hill Rise, Croydon, aeronautical engineer. W. E. Dommett, 14, Cranes Park, Surbiton, consulting engineer. Secretary. W. A. Foster. Solicitors: Fosters, 168, Regent Street, W.1. Registered office: 168, Regent Street, W.1.

PERSONAL NOTICES.

Births.

CAUTER.—On Sept. 18, at Hendon, to Kathleen Eve, wife of C. F. Cauter—a son (Peter).

JOSKE.—At Suva, Fiji, on June 23, to Elizabeth, wife of Clive Brewster Joske, M.C. (late R.F.C. and R.A.F.)—a son (David).

Forthcoming Marriages.

COCHRANE—WIGGIN.—A marriage has been arranged, and will take place in December, between Sq. Ldr. the Hon. Ralph Cochrane,

Fit "TripleX" Regd -and be safe!
TRIPLEX PLATE TRADE MARK REGISTERED
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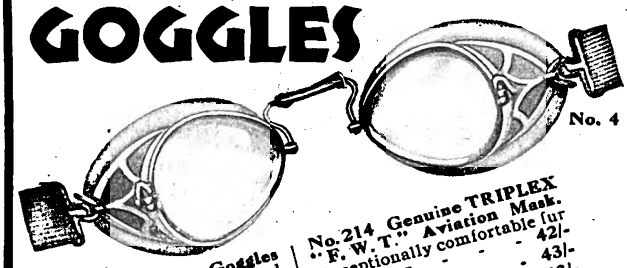
GOGGLES



Meyrowitz Luxor Goggles No. 4. With white or tinted non-shatterable (TRIPLEX) lenses - - - - 40/-
Leather cases supplied.
Meyrowitz Luxor Goggles No. 6. With white or tinted cylindrical bent lenses - 35/-
With hand-ground meniscus lenses, white, 50/- Tinted, 55/-
With hand-ground meniscus lenses, non-shatterable - 85/-
Aluminium cases supplied.
Detachable Leather Masks for either type of Goggle, 7/6

No. 214 Genuine TRIPLEX "F. W. T." Aviation Mask. Exceptionally comfortable fur lined, clear - - - 42/-
Amber green - - - 43/-
Blue or grey smoke - - - 43/-
Leatherette case supplied.

No. 220. Featherweight Goggles. Fitted splinterproof lenses - - - - 7/6

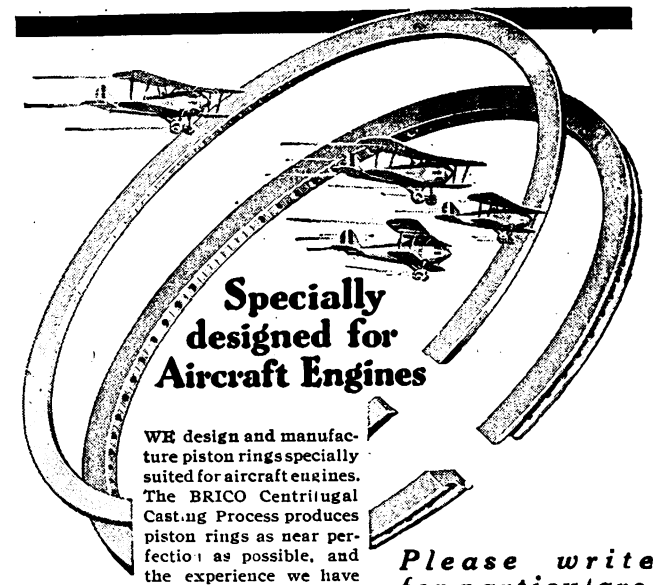
No. 224. Mask Goggles. Fur or fleece lined, fitted splinterproof lenses - - - 12/6

D. LEWIS

124 Great Portland St., London, W.1.
Telephone—Museum 4314. Telegrams—Aviakit, Wesdo, London.

PROVINCIAL AGENTS—

N. JONES, 19 Spiceal Street, Birmingham (Two doors past Edgbaston Street).
N. JONES, 43/45 Snig Hill, Sheffield.
N. JONES, 217 London Road, Liverpool.



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"SEA CLIFF" Trade Mark.

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BIRMINGHAM.

Phosphor Bronze

IN ALL FORMS.

Non-corrosive. Hard as Steel.
Looks like gold.

On a Plane of their own

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AIRMAN

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ALL AT 9½D PER OZ.

'AIRMAN' MIXTURE *(as illustrated)*
'AIRMAN' NAVY CUT *(as illustrated)*
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'AIRMAN' BROWN HONEYDEW
'AIRMAN' GOLDEN HONEYDEW

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Brilliant Performance
and Absolute Dependability

...make WACO the most popular commercial aircraft in America

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A.F.C., R.A.F., youngest son of Lord and Lady Cochrane of Cults, and Hilda, third daughter of the late Mr. and Mrs. F. H. Wiggin, niece of Miss E. C. Wiggin, of 20, Pelham Crescent, S.W.7.

MACDONALD—HOLMDEN—The engagement is announced between Flt. Lt. Somerled Douglas Macdonald, D.F.C., R.A.F., eldest son of the late Dr. David Macdonald and Mrs. Macdonald, of Glen Urquhart, Inverness-shire, and Mary Laura, only daughter of Sir Osborn and Lady Holmden, of 17, Princes Gardens, S.W.7.

NORWAY—HEATON.—The engagement is announced between Nevil S. Norway, of the St. Leonard's Club, York, son of Mr. A. H. Norway, C.B., and Mrs. Norway, and Frances Heaton, M.B., B.S., second daughter of Mr. and Mrs. B. Heaton, of Bromley, Kent.

[Mr. Norway is one of the chief members of the Design Staff of R.100, and is a prominent member of the Yorkshire Aero Club.—ED.]

SEALY—FARNSWORTH.—The engagement is announced between Flt. Lt. Charles Forbes Sealy, R.A.F., son of the late Lt.-Col. A. E. Sealy, 4th Gurkha Rifles, and Sylvia Cloudesley, third daughter of the Rev. W. and Mrs. Farnsworth, of Fotherby Vicarage, Louth, Lincolnshire.

MARRIAGES.

ELMHIRST—BLACK.—On Sept. 16, at the Bow of Fife Church, by the Rev. P. D. Thompson, D.D., Sq. Ldr. T. W. Elmhirst, A.F.C., son of the Rev. W. H. Elmhirst and Mrs. Elmhirst, of Elmhirst, Barnsley, Yorkshire, to Katharine Gordon, daughter of Mrs. Black and of the late William Black of Chapel, Kingskettle, Fife.

KNOX—THOMAS.—On Sept. 16, at Oxford, Capt. Howard V. Knox, M.A. (Oxon), late Royal Garrison Regiment and R.A.F., to Nesta Myfanwy Thomas, only daughter of the late the Rev. Stephen Thomas.

MARTINGELL—BROWN.—On Sept. 16, at Sywell, Northamptonshire, Sq. Ldr. G. H. Martingell, A.F.C., son of the late Mr. Henry Martingell and Mrs. Martingell, of Sandgate, and Miss Phyllis Bletsoe Brown, only daughter of Mr. and Mrs. Harold Brown, of Sywell.

MERTON—KIRBY.—The marriage arranged between Mr. Walter Hugh Merton, R.A.F., and Miss Betty Beckford Kirby, took place at Winchester Cathedral on Sept. 22.

TOWERS—DE GRANDMONT.—On Aug. 9, 1930, at Fort Ticonderoga, New York, Captain John H. Towers, U.S.N., Assistant Chief of the Bureau of Aeronautics, of Washington, D.C., to Anne Pirette Chauvin de Grandmont, daughter of the late Col. Pierre Chauvin de Grandmont, of Paris, France.

DEATHS.

CLARKE.—On Sept. 15, in the Dir Valley, North-West Frontier Province of India, as the result of a flying accident, Sjt. Owen Cambridge Clarke, R.A.F.

VALENTINE.—On Sept. 15, in the Dir Valley, North-West Frontier Province of India, as the result of a flying accident, L-AC. Frank Spender Valentine, R.A.F.

"QUESTION MARK"
FIRST PARIS—NEW YORK NON-STOP FLIGHT
SCINTILLA
MAGNETOS
SCINTILLA LIMITED, 14, CLERKENWELL CLOSE, E.C.1.

MISCELLANEOUS ADVERTISEMENTS.

All advertisements for this column should arrive at this office by first post Monday, to ensure insertion.
For the convenience of Advertisers replies can be received at the office of THE AEROPLANE, Cannon House, Pilgrim Street, London, E.C.4.
Special PREPAID Rate—18 words 4/6, 3d. per word after; 13 insertions, 18 words, 4/-; 26 insertions, 18 words, 3/6; 52 insertions, 18 words, 3/-, 2d. per word after. Situations Wanted ONLY—18 words 1/-. Box No. 6d. extra.

MOST IMPORTANT.

Established as one of the foremost joy-riding companies for a number of years we now have an opportunity of extending our activities to include another lucrative branch of Aviation. **TO DO THIS WE MUST HAVE A SUBSTANTIAL INCREASE OF CAPITAL.**

If you appreciate the possibilities in aircraft operating within the next few years, have capital to invest, and wish to take active or non-active interest in a company which, through its experience and business methods is assured a future,—write, Box 5926, THE AEROPLANE, Cannon House, Pilgrim Street, E.C.4.

AIR SURVEY.

Air Survey Co. Ltd., 3, Grosvenor Gardens, S.W.1. (Victoria 5903.) Dum Dum, Calcutta, and Monkey Point, Rangoon.

The Aircraft Operating Co. Ltd., 8, New Square, Lincoln's Inn, London (Holborn 8131), and Broken Hill, Northern Rhodesia; Rio de Janeiro, South America; Contractors to the Ordnance Survey, Drawing Offices and Laboratories, Aerofilms Ltd., Colindale Avenue, Hendon (Colindale 6183 and 6184).

PATENTS.

A. Peter Thurston and Co., Patent Agents, Aeronautical Consulting Engineers, 329, High Holborn, W.C.1. Telephone Holborn 2542.

STANLEY, POPPLEWELL AND FRANCIS, Chartered Patent Agents, Jessel Chambers, 88, Chancery Lane, W.C.2. Telephone, Holborn 6393; Telegrams, "Notions, London."

AIRCRAFT INSTRUMENTS.

Aero basket seats 2s. 6d.; C.A.V. Hand Magnetos complete 15s.; Avro pattern safety belts 2s.; Screw Pickets 12 in. 6d.; K.L.G. Plugs F.7. 1s. 6d.; F.9. 9d.; F.12. and 15. 1s.; Hand Pressure Pumps with release cock 1s. 6d.; Cirrus Mk. I Engine complete £30. Coley distant reading Thermometers 25s.; Pressure Gauges, Airspeeds, Aneroids, Levels, etc. Send for list. Why not visit this interesting store of Aircraft supplies! Coley Ltd., Ordnance Works, Kingston-on-Thames. 8-6, including Saturdays.

AIRCRAFT FOR SALE.

D.W. SCHOOL OF FLYING LTD.

For Aircraft, Sales and Service. Ford Aerodrome, Yapton, Sussex. Littlehampton 419.

Cranwell Single Seater, A.B.C. Scorpion. C. of A. for 12 months. Just reconditioned. £215. Baldwin, R.A. Mess, Catterick Camp.

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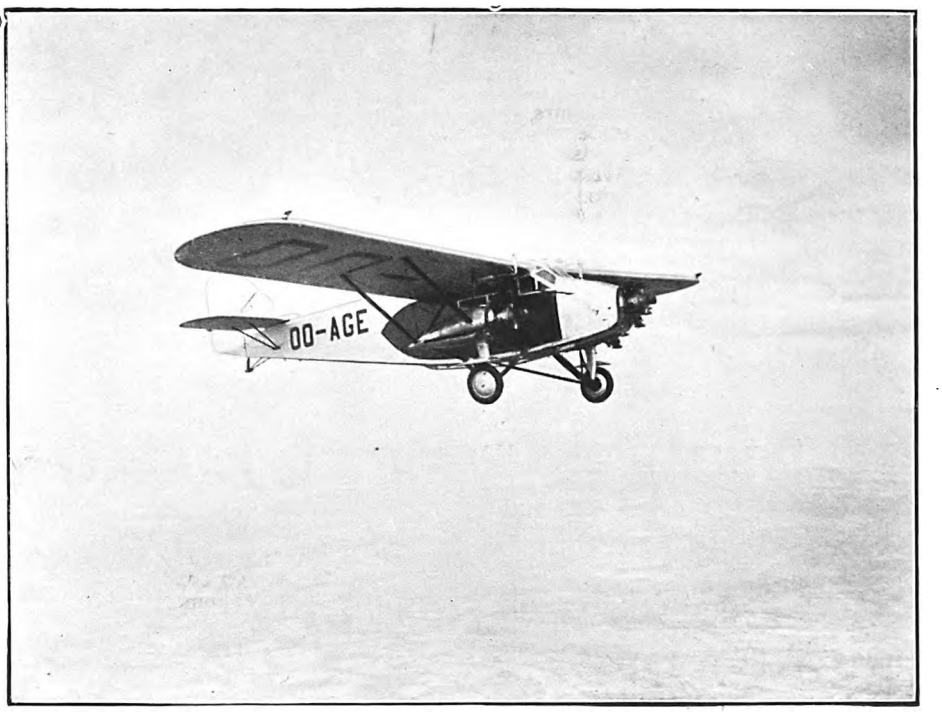

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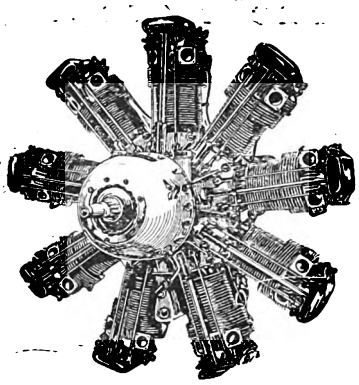

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